Historical Geology GEOL 1404
Department of Physical and Environmental Sciences
Spring 2016

A. COURSE INFORMATION

Course number/section: GEOL 1404.001 / GEOL 1404.101
Class meeting time: (Lecture) M.W.F. 10-10:50 AM
Lab meeting time: (Lab) W. 12-1:50 PM
Class / Lab location: Lecture in CS-115; Lab in CS-226
Course Website: TBA

B. INSTRUCTOR INFORMATION

Lecture & lab: Mr. Randy Bissell
Office location: TBA
Office hours: Mon/Wed/Fri. 11:00 am to 12:00 pm (after class/before lab on Wednesdays) and Wed (after lab) 2:00 to 4:00 pm. I encourage you to contact me with any questions or concerns you may have (see email addresses listed below). If you do not get a response within two business days, please resend your email.
Telephone: 361-816-4920 (cell/text)
E-mail: TBA
Alt. e-mail: randy.bissell@att.net
Appointments: Please email the lecture instructor directly for an appointment. Appointments may be outside office hours.
Lab assistant: TBA

C. COURSE DESCRIPTION

Catalog Course Description
4 sem. hrs. (3:2) TCCNS Equivalent: GEOL 1404. Introduction to the origin and evolution of Earth and other planets. Changes in the form and distribution of Earth's continents and oceans, and succession of plants and animals through geologic time. Laboratory studies of fossils, geological maps, and the interpretation of ancient environments of rock formation. This course counts toward the natural science component of the University Core Curriculum. Prerequisite: GEOL 1403 or GEOL 1303. Safety training given during a laboratory meeting early in the semester is required for continued participation in this course.

Extended Course Description
Geology 1404 is an introductory Earth Science course covering the history of Earth and the evolution of life on our planet. After a brief review of basic geological principles (plate tectonics theory, rock cycle), the course will provide an overview of geologic time, origin of the Universe and Earth, relative and radiometric dating, fossils, evolution, and changes in the form and distribution of Earth’s continents and oceans. The geologic and life history of North America and other parts of the world will be discussed in the second half of the semester. The course will close with an introduction to human evolution and topics related to global
climate change.

D. **PREREQUISITES AND COREQUISITES**

Prerequisite course required – GEOL 1403 or GEOL 1303. Physical Geology.

E. **REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES**

**Required Textbook:** The Earth Through Time by Harold Levin (2013), 10th ed.
**ISBN:** 9781118254677

**Optional Textbook(s) or Other References:** None.

**Supplies:** For Lab: pencils, colored pencils, and ruler. A hand lens (loupe) or a magnifying glass is useful for geology majors. Supplies are available in the bookstore, online, or locally.

F. **STUDENT LEARNING OUTCOMES AND ASSESSMENT**

Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts. This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

By the end of this course, students should be able to:

1. Describe in general historical sequences, the **evolution of the Earth** through time, to include: the changing locations of continents; variation in atmosphere and climate; and major classifications of organism groups and their recorded evolution.
2. Apply principles of **geologic age** and age determination and use the geologic time scale.
3. Express in verbal and written example core concepts of geologic ideas using an expanded geologic vocabulary.
4. Apply principles of the **scientific method** applied to Earth Sciences.

In addition to the content knowledge the course also provides you with basic core competencies such as:

1. **Thinking critically**, e.g. when approaching topics using the scientific method
2. **Solving problems** by working individually and collaboratively in teams
3. **Communicating ideas**, e.g. when presenting some of your own work to the group verbally or in writing
4. **Analyzing charts and data** when working with numeral data, reading graphs etc.
G. INSTRUCTIONAL METHODS AND ACTIVITIES

Historical Geology is also commonly referred to as “Earth History” because it is principally a history course with few scientific equations or problems. Lectures will include prepared PowerPoint presentations with demonstrative photos from many parts of the world. Student questions, challenges, responses and interactions are desired and polite conversations will be encouraged and facilitated.

Reading the textbook is essential and specific portions/figures will be integrated into the instruction. Textbook study questions will often appear in quizzes/exams. Google Earth tours of the planet will also be used in demonstration. Many professional geoscientists retain their historical geology textbook as a resource in their personal library, so please consider ownership of the published textbook an investment.

Disciplined notetaking is required for any science. Taking good notes in class ensures that you know what will be expected in assignments, quizzes, and formal examinations.

H. MAJOR COURSE REQUIREMENTS AND GRADING

The student learning outcomes described in Section F will be measured through the assignments listed below. Lecture activities are worth 67% and lab activities are worth 33% of the course grade. Limited extra credit opportunities will be made available.

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>POINTS</th>
<th>% of FINAL GRADE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Lecture Quizzes Covering Key Vocabulary</td>
<td>10 x 10 pts =</td>
<td>17%</td>
</tr>
<tr>
<td>and Concepts</td>
<td>100 points</td>
<td></td>
</tr>
<tr>
<td>Attendance &amp; Participation</td>
<td>Straight percent</td>
<td>17%</td>
</tr>
<tr>
<td>converted to 100 points</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mid-Term Examination</td>
<td>50 points</td>
<td>8%</td>
</tr>
<tr>
<td>Period/Epoch/Event Essay &amp; Presentation</td>
<td>50 points</td>
<td>8%</td>
</tr>
<tr>
<td>Comprehensive Lecture Final Exam</td>
<td>100 points</td>
<td>17%</td>
</tr>
<tr>
<td>Lab Participation and Activities</td>
<td>12 x 10 pts =</td>
<td>20%</td>
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<tr>
<td>120 points</td>
<td></td>
<td></td>
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<tr>
<td>Comprehensive Lab Final Exam</td>
<td>80 points</td>
<td>13%</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>600 POINTS</strong></td>
<td><strong>100%</strong></td>
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</tbody>
</table>

A perfect score in this course would be to earn all 600 points available.

Final grading will be based upon these percentage ranges of accumulated/total points: A = 100% to 90%, B = 89% to 80%, C = 79% to 70%, D = 69% to 60%, F = 59% and below.
One combined GEOL 1404 Lecture/Lab grade will be determined.

**Note: no curve should be expected to be applied.** Opportunities for bonus points, requiring independent research or presentation, may be requested by the student or offered by the instructor through the semester. Standard rounding conventions will be applied to decimal percentages.

### I. COURSE CONTENT/SCHEDULE

#### LECTURE SCHEDULE

<table>
<thead>
<tr>
<th>WEEK</th>
<th>DATE</th>
<th>LECTURE TOPIC</th>
<th>TEXTBOOK CHAPTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/20</td>
<td>Where are we today? The Science of Historical Geology Lab overview, supplies, footwear, safety &amp; expectations</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>1/22</td>
<td>Early Geologists Tackle History’s Mysteries. Topic Assignments.</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>1/25</td>
<td>The Geologic Time Scale</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>1/27</td>
<td>Time and Geology</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>1/29</td>
<td>Time and Geology - QUIZ 1</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>2/1</td>
<td>Brief Review of Rocks and Minerals</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>2/3</td>
<td>Sedimentary Archives</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>2/5</td>
<td>Sedimentary Archives - QUIZ 2</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>2/8</td>
<td>Finish Sediment Archives / Intro to Life on Earth</td>
<td>6</td>
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<tr>
<td>4</td>
<td>2/10</td>
<td>Life on Earth: Fossils</td>
<td>6</td>
</tr>
<tr>
<td>4</td>
<td>2/12</td>
<td>Life on Earth: Fossils - QUIZ 3</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>2/15</td>
<td>Life on Earth Wrap Up/ Into to Plate Tectonics</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>2/17</td>
<td>Plate Tectonics</td>
<td>7</td>
</tr>
<tr>
<td>5</td>
<td>2/19</td>
<td>Plate Tectonics – QUIZ 4</td>
<td>7</td>
</tr>
<tr>
<td>6</td>
<td>2/22</td>
<td>The Archean Eon</td>
<td>8</td>
</tr>
<tr>
<td>6</td>
<td>2/24</td>
<td>Intro to the Proterozoic Eon</td>
<td>8</td>
</tr>
<tr>
<td>6</td>
<td>2/26</td>
<td>Proterozoic Eon – QUIZ 5</td>
<td>8</td>
</tr>
<tr>
<td>7</td>
<td>2/29</td>
<td>Proterozoic Origins of Life</td>
<td>9</td>
</tr>
<tr>
<td>7</td>
<td>3/2</td>
<td>Dawn of the Modern World</td>
<td>9</td>
</tr>
<tr>
<td>7</td>
<td>3/4</td>
<td><strong>Welcome to the Paleozoic</strong> – QUIZ 6</td>
<td>10</td>
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</tbody>
</table>
| 8   | 3/7 | Early Paleozoic  
| 8   | 3/9 | Late Paleozoic  
| 8   | 3/11 | Review for the Mid-Term Exam (Chapters 1-9) on Wed. 3/23  
| 9   | 3/14-18 | SPRING BREAK  
| 10  | 3/21 | Life in the Paleozoic Era  
| 10  | 3/23 | MID-TERM EXAMINATION (1-9)  
| 10  | 3/25 | Life in the Paleozoic Era – QUIZ 7  
| 11  | 3/28 | Paleozoic Wrap Up  
| 11  | 3/30 | Welcome to the Mesozoic  
| 11  | 4/1 | Mesozoic Events  
| 12  | 4/4 | Mesozoic Events Finale  
| 12  | 4/6 | Life in the Mesozoic Era  
| 12  | 4/8 | Dinosaurs – QUIZ 8  
| 13  | 4/11 | The End of the Dinosaurs  
| 13  | 4/13 | Mesozoic Overview and Summary  
| 13  | 4/15 | Welcome to the Cenozoic – QUIZ 8  
| 14  | 4/18 | Cenozoic Events  
| 14  | 4/20 | Late Cenozoic Changes  
| 14  | 4/22 | Life in the Cenozoic – QUIZ 9  
| 15  | 4/25 | Life in the Cenozoic Wrap Up  
| 15  | 4/27 | Human Origins  
| 15  | 4/29 | Human Origins and Anthropocene – QUIZ 10  
| 16  | 5/2 | Trajectories in Earth’s Future  
| 16  | 5/4 | Review for the Comprehensive Final Exam (Chapters 1-17) Date TBA  
| FINAL | TBA | COMPREHENSIVE FINAL (ALL TEXT, NOTES, LAB CONCEPTS) (1-17)  

**LAB SCHEDULE**
Consult Blackboard before each lab for additional pertinent information.

*Laboratory is required for GEOL 1404. Participation in laboratory is essential to a full understanding of GEOL 1404 concepts.* Lecture content and lab projects will overlap in information, scope, and objective. It is almost impossible to neglect or fail the laboratory portion of GEOL 1404 and pass the course.
<table>
<thead>
<tr>
<th>WEEK</th>
<th>DATE</th>
<th>LABORATORY TOPIC</th>
<th>TEXT CHAPTERS (PORTIONS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/20</td>
<td>No Lab Meeting: Students must complete SMTE 0094 Lab Safety before Lab 1</td>
<td>Online Lab Safety Seminar</td>
</tr>
<tr>
<td>2</td>
<td>1/27</td>
<td>Lab 1: Time and Ordering of Geologic Events. Quiz on Lab Safety</td>
<td>1-2,4</td>
</tr>
<tr>
<td>3</td>
<td>12/03</td>
<td>Lab 2: Relative and Absolute Age Dating.</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>2/10</td>
<td>Lab 3: Rocks and Sedimentary Structures</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>2/17</td>
<td>Lab 4: Introduction to Fossils</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>2/24</td>
<td>Lab 5: The Geologic Time Scale</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>3/2</td>
<td>Lab 6: Geologic History of North America</td>
<td>10</td>
</tr>
<tr>
<td>8</td>
<td>3/9</td>
<td>Lab 7: Fossils I</td>
<td>6,9,12,14,16</td>
</tr>
<tr>
<td>9</td>
<td>3/16</td>
<td>SPRING BREAK</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>3/23</td>
<td>Lab 8: Fossils II</td>
<td>6,9,12,14,16</td>
</tr>
<tr>
<td>11</td>
<td>3/30</td>
<td>Lab 9: The Earth Through Time I</td>
<td>8,10,11,13,15</td>
</tr>
<tr>
<td>12</td>
<td>4/06</td>
<td>Lab 10: The Earth Through Time II</td>
<td>8,10,11,13,15</td>
</tr>
<tr>
<td>13</td>
<td>4/13</td>
<td>Lab 11: Paleoclimate Studies</td>
<td>Notes</td>
</tr>
<tr>
<td>14</td>
<td>4/20</td>
<td>FINAL EXAM (COMPREHENSIVE)</td>
<td>All Key Text and Notes</td>
</tr>
<tr>
<td>15</td>
<td>4/27</td>
<td>Lab 12: Lab Review for Lecture Final</td>
<td>All Key Text and Notes</td>
</tr>
</tbody>
</table>

Note: Changes in this course schedule may be necessary and will be announced to the class by the instructor. The assignments and exams shown are directly related to the Student Learning Outcomes described in Section F.

**J. COURSE POLICIES**

**Attendance/Tardiness**

**Lecture Attendance.** Roll will be taken and attendance is required. Tardy entry after roll is taken is a missed class. Excuses considered when presented before planned absence or in emergency cases due to a verified medical or family condition. If you cannot attend a lecture meeting you should contact the instructor beforehand or as soon as possible afterwards to determine if missed work can be made up.

**Lab Attendance.** Lab attendance is mandatory. If you don’t come to the lab, you cannot collect data for lab reports or participate in in-class exercises. If you have an excused
absence, contact the instructor as soon as possible to discuss the matter. There are no opportunities to make up a missed lab activity after the week has passed.

**Late Work and Make-up Exams**
Assigned work is due by the stated deadlines. The grade for any late work will be reduced by up to 20% for each day it is late. Exams may be made up only in cases of an excused absence and students should contact the instructor in advance to make prior arrangement if possible.

**Extra Credit**
Limited extra credit opportunities will be available. Extra credit work must be submitted by the stated deadlines.

**Cell Phone Use**
Electronic devices, including phones, can be prudently used for in-class communications, notetaking, or recording. Distraction, annoyance, or nuisance by the use of any device will be addressed immediately by the instructor and the student will have the option of discontinuing its use or exiting the classroom (resulting in a recorded absence). Cellphones should be silenced. No phone conversations are allowed in class.

**Laptop Use**
You are welcomed to bring a laptop or other device to class, with the presumption that you are using it to facilitate your own learning (takes notes, research an issue, etc.). The use of laptops for other uses is discouraged as it distracts from the learning experience.

**Food in Class and Lab**
Students’ schedules may be hectic and may not allow time between classes for meals. If consuming food and drink in the lecture classroom please respect the facilities by cleaning up all spills immediately and removing all trash. **Important** - Food or drink may **not** be brought into, nor consumed under any circumstances, in the lab room.

**Missed Exam**
Students who must miss an exam should contact the instructor in advance to make arrangements to make up the missed exam. If the absence is unplanned, you should contact the instructor as soon as possible about the situation. Students who miss an exam or quiz due to excused absence may make it up. Exam and quiz makeups should be completed as soon as possible.

**Participation**
Students are encouraged to actively participate in lecture and lab discussions. Generally students who participate more actively are able to learn the material more effectively. Lab participation and helpful assistance by students are components of the course grade.

**Others**
**Lab Attire:** Geology students should wear substantial footwear affording comfort and support while standing or walking. Closed-toed shoes are required in the lab. Students not wearing appropriate footwear will not be allowed to participate in lab and will be counted absent. Other attire may be required for specific lab activities. Some labs may be conducted outside, rain or shine (except in rare occasions such as hurricanes). Wear weather-appropriate clothes, as well as sunscreen and/or bug spray. Check the announcements posted to Blackboard each week for information on the weekly lab activity and recommended attire.

**Lab Manual:** Lab resources will be posted to Blackboard or provided in lecture classes.

**Plagiarism.** Penalties for plagiarism are discussed in the TAMUCC Academic Integrity/Plagiarism policy and apply to both lecture and lab assignments. The lab projects may be conducted in groups, and sharing **data** is allowed, but each student present their individual work. Maps will be examined for evidence of copying.

### K. COLLEGE AND UNIVERSITY POLICIES

- **Academic Integrity (University)**
  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 failing grade.

- **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.

- **Statement of Civility**
  Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. Our goal is to provide you with a high quality educational experience that is free from repression. You are responsible for following the rules of the University, city, state and federal government. We expect that you will behave in a manner that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.
• **Deadline for Dropping a Course with a Grade of W (University)**
  The grade of W will be assigned to any student officially dropping a course. Please consult with the instructor before you decide to drop to be sure it is the best thing to do. Just stopping attendance and participation **WILL NOT** automatically result in your being dropped from the class. Should dropping the course be the best course of action, visit the Office of the University Registrar for the Course Drop Form that must be submitted. No student is eligible to receive a W without completing the official drop process by this deadline. Please consult the Academic Calendar ([http://www.tamucc.edu/academics/calendar/](http://www.tamucc.edu/academics/calendar/)) for the last day to drop a course.

• **Grade Appeals (College of Science and Engineering)**
  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. Documents are accessible through the University Rules website [http://www.tamucc.edu/provost/university_rules/index.html](http://www.tamucc.edu/provost/university_rules/index.html), and the College of Science and Engineering Grade Appeals webpage at [http://sci.tamucc.edu/students/GradeAppeal.html](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.

• **Disability Services**
  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 (361) 825-5816 or visit Disability Services 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.

  [http://disabilityservices.tamucc.edu/](http://disabilityservices.tamucc.edu/)

• **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.

L. OTHER INFORMATION

- Academic Advising
  The College of Science & Engineering requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair. Meetings are by appointment only; advisors do not take walk-ins. Please call or stop by the Advising Center to check availability and schedule an appointment. The College’s Academic Advising Center is located in Center for Instruction 350 or can be reached at (361) 825-3928.

GENERAL DISCLAIMER

The instructor reserves the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. Changes will be announced in a timely manner during regularly scheduled lecture and lab periods.