

ES 110 – Online Earth and Astronomical Science

Textbook: Tarbuck, Lutgens & Tasa. 2012. *Earth Science* 13th Ed., Prentice Hall. (ISBN: 0-321-68850-3)

Course Description: This 8-week, online course is a compilation of modern geology/earth science and astronomy. Astronomy topics covered will include: the night sky basics, the history of astronomy (scientific revolution), the formation of the solar system, planets, the Sun, and a brief introduction to galaxies and cosmology. Earth Science topics will include: geological history and systems of the Earth, rocks and minerals, oceans and atmosphere, plate tectonics, earthquakes, volcanoes, and mountains. While specific earth science and astronomy topics will be covered, the main focus of the course is discovering the connection and dependence of these two branches of science. Continuously throughout the course we will keep up-to-date on current research and news concerning the topics covered. This course counts as general education, non-lab science and nature credit.

Course Goal: Understand the basics of Astronomy and Earth Science and be able to apply the knowledge learned to real world applications in everyday life and understand how the two branches of science are interrelated and depend on one another.

Prerequisites: Access to a computer with Internet and word processing, have access to an active McKendree e-mail account and familiarity with browsing the Internet and accessing Blackboard. Downloading Skype on your personal computer may also be beneficial for communication during the course.

Grading: The overall grade in the course will include 8 quizzes, 8 homework assignments, 8 online discussions and a current news article assignment. Table 1 below gives the point value for each part of the overall grade:

| | |
|--|----------------|
| Weekly Concept Quizzes (8 x 25pts) | 200 pts |
| Weekly Homework (8 x 25pts) | 200 pts |
| Weekly Discussion Board (8 x 25pts) | 200 pts |
| Current News Article | 100 pts |
| Total Points for Course | 700 pts |

| | | | |
|-----------|-----------------|-----------|-----------------|
| A | > 93% | C+ | 76 – 79% |
| A- | 90 – 93% | C | 73 – 75% |
| B+ | 86 – 89% | C- | 70 – 72% |
| B | 83 - 85% | D | 60 – 69% |
| B- | 80 – 82% | F | < 60% |

Your final grade will be determined by percentages as listed in the Table above. To calculate your grade at any time during the course, take the total points earned divided by the total number of points at that time in the course. At the end of the course there will be a total of 700 points. Your grades will be frequently updated on Blackboard under the gradebook, so please check your grades often to make sure the posted grades agree with what you have calculated on your own. To access your grades, enter Blackboard and click on “My Grades” from the course main menu.

Expectations: This course will be completely Online and students are expected to complete the work on their own, expect for specified group work, where a shared effort will be provided from each student. Collaboration may also be done on homework assignments, but each student must turn in their own work. Students are expected to stay with the pace of the class and not be too far ahead or behind. Students are expected to be no more than 1 week ahead of the class. There will be clear due dates for each of the assignments, so NO late work will be accepted. No partial credit will be given for late assignments, which includes Homework, Quizzes, News Article submission and Discussions. Students are expected to log on to Blackboard a minimum of 2 days per week to participate in weekly discussions and turn in homework and quizzes and keep apprised of recent announcements. Students are also expected to use the Reading Guides and PowerPoint Lecture slides provided for each chapter to guide their learning process and prepare them for the quizzes, discussions, and homework assignments. There is a Help Discussion Board for use on specific homework or reading questions. Each student is expected to check the Help Board periodically and answer other

student's questions if they can. The instructor will also check the Help Discussion Board often and respond to questions.

All weekly discussion boards, homework and quizzes must be complete before the start of the next week. Specifically, the class will run on a Monday-to-Monday time frame. This means the discussion board, homework, and quiz will be posted Monday and must be completed and turned in before the next Monday. Finally, students are expected to regularly check the announcements page on the Blackboard course.

The Course Components

- **Textbook:** The textbook we are using for this course is Earth Science 13th Ed by Tarbuck, Lutgens and Tasa (2012 Prentice Hall. ISBN: 0321688503). You can purchase your textbook through the McKendree University Bookstore, order your textbook online (using Amazon or other book sellers) or you can purchase an e-book from the publisher (please contact your professor for help in acquiring access). Two copies of the textbook are always available on reserve in Holman library for you to use.

You may also use the previous edition of this textbook for this course: Earth Science 12th Ed by Tarbuck, Lutgens and Tasa (2009 Prentice Hall. ISBN: 0136020070).

- **Lecture PowerPoint Slides with Audio:** Lecture slides will be provided for the chapters covered in the course. These slides are to be used as a guide in your learning process in conjunction with reading the textbook. As you read through the chapters, follow the PowerPoint slides just as you would in a traditional class and use them to help answer homework questions and answer discussion questions. Most lecture slides also include an audio explanation!

Within each lecture you will find several "Concept Questions". These questions allow you to determine if you comprehend the material. Please take the time to think about each question and decide on your answer before moving on to the answer slide.

- **Reading Guides:** Because this course is completely online, most of the learning will be taking place independently. However, just saying, "Read Chapter 4" can be a very difficult and daunting task for anyone. Therefore, for each chapter, there is a Reading Guide. Each student should print out/read the Reading Guide and use it to direct your reading of the chapter. If you have any questions about the Reading assignments you can post your questions on the Help Discussion Board or email your instructor.
- **Homework Assignments:** Homework problems will be assigned weekly, consisting of questions or activities based on the lectures, textbook reading, article readings and other material provided in the module. You must type your homework assignment answers on a word processor and save it in the following format:

○ lastname_firstname_assignment (*For example:* smith_john_hw1)

You must save your assignments in a word document (.doc, .docx) or PDF (.pdf) format*. I will NOT accept assignments with names in any other format. You will submit all your homework via Blackboard. Also, please remember to put your name on the document!

How to turn in Homework Assignments: In the Module for the week, click on the "Homework" tab. Within the "Upload Assignment: Homework" page, scroll down to "Assignment Submission". Here you can upload your word document, using the "Attach File – Browse My Computer" button and select your file to upload. Once you have uploaded your assignment, click, "Submit". All assignments in this course will be due NO LATER than MIDNIGHT on the due date.

There will be a total of 8 homework assignments, each worth 25 points. Homework can be done with other students in the class, but each student must turn in their own work, written in their own words. So yes collaboration is encouraged, but this means NO identical answers on homework questions; answer in your own

words! In addition copying from the textbook is considered cheating! Answer questions with your own thoughts and words only. The reading and homework are crucial for succeeding on the quizzes and graded discussion boards. They are your tools, use them well!

*To change a File Type: When saving a document you can choose what file type you want to save the document as. Click “Save As”, and under where one types in the File Name you will see a menu called “File Type”. Open this menu and from there you can select: Word Document (.doc or .docx) or PDF (.pdf). Once selected, click on “Save”.

- **Discussion Boards:** Each student’s involvement is crucial in the success of an online course. A bulk of each student’s involvement is done through the discussion boards and group work. The discussion boards are not meant to be static information distribution but instead are tools to foster learning and therefore part of the overall grade comes from online participation in the discussion board.

How to Access the Discussion Board: The graded discussion board can be found by accessing the Discussion Board link within the Module for the week. This will direct you to the discussion board forum for the week. You may also access the discussion board from the main menu on Blackboard, by clicking on the “Discussion Board” button. You will be taken to the entire discussion board page, which includes all the discussion forums for the course.

The discussion board is divided into Forums: a forum is where the discussion question is displayed and where you can enter your posts with other students in the course. Each week there will be a new forum containing a new discussion topic related to the current material you are studying. The discussion forums are then organized by threads where a thread is the first post in a series. The forum will contain multiple threads as each student posts their thoughts and comments. When you log on to the discussion board you can start your own thread, or you can reply to a thread that has already been started. Blackboard will organize the threads and replies so that they appear in the correct order and are visually arranged into an outline.

There are two types of Discussion Boards for this course: The Help Discussion Board and The Graded Discussion Board. The Help discussion board will always be displayed as the first forum. This Help discussion board is available for you to ask questions about the course and the assignments. It is completely optional and does not contribute to your grade for the course in any way.

The Graded discussion board consists of 8 discussion questions, each of which will be worth 25 points toward your total grade in the course. **To receive the full points for a discussion:** you must 1) submit a constructive and unique original post AND 2) constructively add to the discussion with at least 2 reply posts.

1) Initial Original Post: The initial post must be submitted no later than ***Wednesdays by 11:59pm***. Once you submit your original post, you will be able to see all other students’ posts. For your original post, do not copy and paste from websites, textbook or other students’ posts. We want to know *your* thoughts! If you do reference any articles or textbook statements in the discussion, you must cite your sources within your thread and provide URLs.

2) Reply Posts: Constructively add to ***at least two other student’s post*** with questions, your personal reasoning, research and enlightenment. Your two reply posts must be made on ***at least two separate days***, so be checking and participating in the discussion throughout the week! If you do reference any articles or textbook statements in the discussion, you must cite your sources within your thread and provide URLs.

*The Discussion Board grading rubric is attached to the end of this document.

Netiquette - When you post to the discussion board, either by starting a new thread or by replying to an established thread, please observe the following guidelines:

- Keep your posts brief and to the point: present the point that you are making fully, but please ensure that readers do not need to scroll through screen after screen to read your entire posting.
 - Stick to the point of the specific discussion board: online discussions, particularly in replies to replies to replies, can drift away from the topic of the board.
 - Make replies substantial: do not clutter the boards with messages saying “I agree” or “Me too”—discuss what you agree or disagree with and why you agree or disagree with it.
 - Make sure to read *all* previous posts in the discussion forum before making your thread in order to avoid duplicate posts.
 - Do not type your replies ALL IN CAPS BECAUSE IT IS THE ONLINE EQUIVALENT TO SHOUTING.
 - Attack the ideas, not the posters: comments that are personally offensive, rude, or otherwise inappropriate will not be tolerated—the instructor will remove them from the board and, if warranted the student may be barred from the Blackboard site – this policy also applies to email and any other form of offensive communication.
 - Discussion board posts should be carefully proofread before posting.
 - Post *your* unique thoughts and insights, not copies of statements from articles, the textbook or other students’ posts. The idea of the discussion board is for you to express your personal interpretation of the topic. You of course can reference support materials to help make your point, but please remember to cite all your sources at the end of your discussion thread and provide URLs.
 - Use the Help Discussion Board to post any general questions you might have about the course content or operation. Questions of a personal nature, such as questions about a grade you receive on a paper, should be carried out by means of email rather than on the discussion board.
- **Current News Articles:** Each student will be assigned a designated week to complete a small research project assignment using the current news in Earth Science and Astronomy. We will share your findings with the class and the world through social media. This will allow us all to keep apprised of current happenings in Earth Science and Astronomy and give you some exposure to using scientific research methods. The assignment description is given in detail on the course Blackboard page. Your research project will be worth 100 points towards your final grade in the course. *This is a “big assignment” for this class, so please ask for help and allocate the time and energy to complete the assignment well!
 - **Quizzes:** One of the primary ways that students will learn and be assessed in this class is through 8 online concept review quizzes administered through Blackboard. The quizzes must be completed independently, will be open book/notes, and consist of T/F, matching, fill in the blank or multiple-choice questions. Do not use the Internet, searching the internet is considered cheating! The questions will come from information from the Reading, Homework, Discussion questions and any additional article readings. Please make sure you fully complete the reading, homework and discussion question before taking the quiz each week. Each quiz will be worth 25pts towards your final grade.

There is no time limit on these quizzes, but once you start the quiz you must finish it. You have two attempts to complete the quiz. Blackboard will record the highest score from your attempts. You do not have to use the second attempt if you don’t want to. After submitting your answers for a quiz attempt, you will be able to see which questions were incorrect and may be given some hints. Correct answers for all questions will be given after the final due date at the end of the week. All quiz attempts must be complete by Midnight at the end of the week.

If you have technological difficulties *during* the quiz (e.g., a loss of electricity or some other emergency), contact your instructor as soon as possible.

Course Geography and Procedures:

- The instructor retains the right to make changes to the syllabus and course schedule. Please refer to your course announcements on Blackboard for regular updates.
- Each day you log on to the computer:
 - 1) Log on to Blackboard, check announcements and the current Module for the week.
 - 2) Check your McKendree Email account
- Any emails sent should mention the course title in the subject line.
- Use and participate in, the help discussion board for general questions and homework and reading questions.
- There are 8 Modules for the course, each containing all the materials you need to complete for that week: lecture notes, reading guide, homework assignment, discussion board question link, additional reading material or news summaries, and the quiz.
- This course will run on a Monday-to-Monday weekly schedule.
- Weekly “TO DO” List:
 - Watch Module Introduction Video ○ Read the chapter (use the reading guide)
 - Read and Listen to the Lecture slides
- Also check out other articles or activities on the module page
 - Participate in the Discussion Board throughout the week! Check/Participate several times a week.
 - Complete the Homework
 - Take the Quiz! (Attempt a second time if needed)
 - Submit Current News Article Assignment if it is your week, otherwise read other students’ news summaries
- **The weekly Homework, Discussion Board Question and Quiz are all due on Monday by midnight (11:59pm).**

*Please note that the last week of the course, is a bit shorter than a full week. I do give a penalty-free extension date for the last week course work if students choose to take it.

Late Homework, Quizzes and Discussion Boards: Late work is NOT accepted. This is a fast paced, online course and therefore each student is held solely responsible to turning in work on time. “I did not have Internet Access”, “My computer crashed” and excuses of the like are not accepted. You must use alternative resources in such cases. Please take some time at the beginning of the course to figure out a “Plan B” for computer or Internet failures. For example, perhaps you can go to a local library, university or coffee shop or use a friend’s computer. (*Special extenuating circumstances may be discussed privately with the instructor through phone or email*).

Academic Honesty: What is cheating Online? For this course you are welcome to work with other students on you HW assignment, discuss and share ideas, but you each must answer questions in your own words. In addition, for HW assignments, copying answers out of the textbook is not accepted; you must explain your answers in your own thoughts and words! For quizzes you must take them alone, no collaboration and no searching the Internet! Working with others and using the Internet are considered cheating. You may consult your textbook and notes for the quizzes. Any student detected of cheating or engaging in plagiarism on any quiz, discussion board, homework or paper, or participating in any other form of academic dishonesty, will receive the appropriate sanctions which can include a failing grade for the course. Recall that plagiarism can be in several forms, such as copying another student’s work, copying information from textbooks or the Internet, etc. Please review the following information on Avoiding Plagiarism from this link: <https://www.mckendree.edu/offices/library/help/citing-sources.php>

Grades: You can view your current grade using the Blackboard gradebook. To access the gradebook, go to the Main Menu on the course Blackboard page, and then click on “My Grades”. The grades will be updated on a weekly basis on Blackboard (each Tuesday), but I keep a separate record of your grades and I encourage you to do the same. Your overall grade for the course is based on total number of points earned. Each graded component of the course is worth a certain number of points: Homework=25pts, Discussion Boards=25 pts, Quizzes=25pts, and Current News Article =100pts. This totals to 700 possible points for the course. To calculate your grade at any time during the course, total how many points you have earned and divide this number by the total number of points available to be earned at that time. Please keep track of your grades on your own so you can check blackboard incase of any discrepancies. If you find anything unusual with your grade please let me know ASAP! Sometimes it is a simple mistake entering a value or the like.

When to Expect Feedback: I will be grading assignments on Tuesdays, so you can expect your HW, Discussions, and Quizzes to be scored and feedback given ***no earlier than end of Day Tuesdays***. You will be able to view all quiz answers only ***after*** the Due Date (Mondays end of day). You can click on your quiz score in the Blackboard gradebook after the due date to see all questions from the quiz and you scores for each question.

Contacting the Instructor: You can contact your instructor by E-mail, Phone or Skype.

When contacting your instructor please allow at least 24-48 hour reply time.

Course Surveys & McKendree Course Assessment: Throughout the course surveys will be available via Blackboard regarding the mechanics, atmosphere and overall accessibility of the course. These surveys do not count towards your final grade in the course. It is asked that all students participate in the course surveys in order to ensure the course runs smoothly and help keep the course up-to-date with the desires and needs of McKendree students.

At the end of the course, please take a moment to fill out the online McKendree Course Assessment. Extra Credit may be awarded for filling out this assessment. These assessments are crucial in order to keep McKendree University and its Instructors at their absolute best. You can fill out the course assessment by accessing the following website and entering your McKendree ID and password: <http://assessment.mckendree.edu>

Computer/Online Technical Assistance: Please make sure your computer is compatible with the Blackboard system! Use the links below to check your computer or for any further help.

Blackboard Browser Compatibility Test & Help Sheets: <http://www.mckendree.edu/offices/it/blackboard.php>

For more Technical questions please contact the IT helpdesk: helpdesk@mckendree.edu

Special Accommodations: This course, within the department of Mathematics and Science, conforms to the disability policies of McKendree University. If you have a physical, learning, or psychological disability and require accommodations, please let me know as soon as possible or contact the McKendree University Academic Support Center:

Tel: (618) 537-6850, Website: <https://www.mckendree.edu/offices/academic-support-center/>

Course Schedule: Next page

Course Schedule:

| WEEK | CHAPTER / TOPIC |
|----------------|--|
| Week1: | <u>Chapter 1 & 2:</u> Introduction to Earth Science, Earth Systems and Minerals |
| Week 2: | <u>Chapter 3 & 7:</u> Rocks and Plate Tectonics |

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|----------------|--|
| Week 3: | <u>Chapter 8, 9 & 10:</u> Earthquakes, Volcanoes and Mountains |
| Week 4: | <u>Chapter 11 & 12:</u> Geologic Time, Earth's Evolution and Astronomical Time |
| Week 5: | <u>Chapter 21:</u> Motions of the Heavens, History of Astronomy, Modern Astronomy |
| Week 6: | <u>Chapter 22 (plus pieces of Chp. 13 & 16):</u> The Solar System, Planets and Moons (geology, water and atmosphere). |
| Week 7: | <u>Chapter 23:</u> The Sun and Astronomical Observations |
| Week 8: | <u>Chapter 24:</u> Stellar Evolution and Introduction to Galaxies |

**The instructor retains the right to make changes to the syllabus. Please refer to your course announcements on Blackboard for any updates.*

Course Grading Rubrics

Discussion Board Grading Rubric

Here is the grading rubric for each of the 8 discussion board questions:

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|---------------|--|
| 5 pts | Cites all sources used for the discussion and includes any links or documents where appropriate. Adds additional sources to the discussion if appropriate. <i>Sources include: Website information, news article, textbook quotes, etc.</i> |
| 10 pts | <u>Two Reply posts must be made on at least two separate days.</u> Responds to at least two other students' discussion posts, showing an engaging discussion about the topic or topics presented within the discussion. Asks an 'original poster' at least one meaningful question which requires an in-depth answer related to their initial post (requiring more than a 'Yes/No' answer). Also, adds meaningful additional information or comments to original posts. Note: Simple reply posts such as "I agree" or "I thought the same thing" or "nice post" will not be accepted for credit. |
| 10 pts | Initial Original Post: Due no later than Wednesday by 11:59pm. Shows comprehension of the material, giving insight and sound points. Adds personal/unique contributions to the discussion. Stays on topic of the discussion and within the general scope of the course. |
| 25 pts | TOTAL Discussion Board Score |

Homework Assignment Grading Rubric

Here is the grading rubric for each of the 8 homework assignments:

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|---------------|--|
| 25 pts | Correctly answers the question(s) OR shows comprehension of the material, giving insight and sound reasoning. Gives detailed and thoughtful answers. Answers each part of the question. Answers are not direct copies from textbook or other sources. <i>(Points are divided appropriately for each question, and varies for each homework assignment)</i> |
| 25 pts | TOTAL HOMEWORK SCORE |

Quiz Grading Rubric

Each Quiz, taken within Blackboard, is worth 25 points and each question is assigned a point value. The questions are either correct or incorrect, so scoring will be zero credit or full credit. Partial credit may be given on a case-by-case basis. Blackboard will record the highest score earned from the two possible attempts.

Current News Article Assignment Grading Rubric:

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|--------|---|--------------|--|
| 25 pts | Summary of Article: Concise summary is in student's own words. Utilizes terms or concepts covered in the course as appropriate. Summarizes article in a way that other students can understand, not just copying from the article itself. Summary is concise, and contains only pertinent details from article related to the course. Student provides a title for the assignment. | | |
| 25 pts | How Earth Science & Astronomy are used in Article: Student answers research question #2 - How does ____ (Your topic/field/article) ____ connect the two sciences, Earth Science and Astronomy, showing how they are related and dependent on one another? Explains how the Earth Science and/or Astronomy concepts we are learning in class are directly used in, or related to the article. Gives 2-3 specific examples. If direct concepts from class are not used, gives an explanation of how what we are learning in class is relevant to the article. Explains how the content presented from this article can show how Earth Science and Astronomy work together or are dependent on one another. | | |
| 20 pts | Relation to Daily Life: Student clearly addresses how the topics in the news article are important in our daily lives. Gives at least two examples that other students can relate to their life. | | |
| 16 pts | Use of Scientific Inquiry and Problem Solving (Scientific Method): Student clearly identifies a topic or field of interest and writes clearly formulated questions regarding chosen topic/field (research questions #1 & #2). Student writes a hypothesis for answering research question #2, and then reflects on hypothesis after researching current news. Student collects data/information by selecting a current news article from a quality source(s) and which uses rigorous analysis and data driven explanations or conclusions. Assessment of this section of the assignment follows the McK Student Learning Outcomes (SLO) Science and Nature rubric (<i>a simplified sample of this rubric is shown below</i>). <i>*The full rubric for this section is available within your Blackboard gradebook</i> | | |
| | Criteria | Total=16 pts | For Full Credit |
| | The language and terminology of science | 4 pts | Proper scientific terminology is used throughout |

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| | How to communicate scientifically | 4 pts | Uses data-based arguments to justify and communicate all components of a current news investigation clearly, accurately, and completely, while supporting, challenging and responding to other ideas. |
| | How to use the scientific method | 4 pts | Able to apply the steps of the scientific method and can evaluate the outcome (clear hypothesis, analysis of news article(s), and conclusions) |
| | How to evaluate the scientific validity of information | 4 pts | Evaluates the credibility and use or misuse (pseudoscience) of scientific and mathematical information in scientific developments and public-policy issues from the current news |
| 10 pts | APA Citation & References: Article URL is provided as well as any relevant photos or videos. Appropriate APA in-text citation and APA reference format is used. I must be able to find the article using the url and reference given. <i>*A submission without citation of references used, or that does not include the original article URL will not be accepted for grading! *</i> | | |
| 4 pts | Article Approval: Student has emailed instructor the article URL they intend to use for the assignment no later than Wednesday at 11:59pm of the week they are assigned. | | |
| 100 pts | TOTAL CURRENT NEWS ARTICLE ASSIGNMENT SCORE | | |

- End of Syllabus-