Summer 2014 SYLLABUS

EAPS 10000 Y01 (EAPS 100) Online Course
PLANET EARTH

(CRN 20804)

Professor Lawrence W. Braile

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Online office hours: Frequently on MTuWThF, less frequently on other days

The **TA** for the course is **Liesl Elison** (lelison@purdue.edu). Office hours: Tuesday 9:30 a.m.-11:00 a.m. and Wednesday 11:00 a.m.-12:30 p.m. in HAMP (CIVL) 3261-L. You can also arrange an appointment by email or phone; office phone is (765) 494-0466.

Secretary: Kathy Kincade (Room CIVL 2169-D, Phone: (765) 494-5984)

Summer 2014 Semester (Mod 2/3; June 16 – August 8, 2014)

NOTE: Please read this syllabus completely and carefully. It answers many of the questions that commonly come up during the semester. You should also keep a copy of the syllabus handy to refer to during the semester. The syllabus/course outline and other course materials are available online (see EAPS 10000 Y01 course on **Blackboard** – login at https://mycourses.purdue.edu/). The syllabus may be updated during the semester; you will be notified for any important change. **EAPS 10000 is an approved course in Purdue's Undergraduate Core Curriculum in the Science, Technology and Society (STS) area** (http://www.purdue.edu/provost/initiatives/curriculum/index.html).

EDUCATIONAL OBJECTIVES: The EAPS 10000 course is designed primarily for non-science majors and provides a brief introduction to Planet Earth including the following geoscience subjects: Earth science (geology), oceanography, atmospheric science (meteorology), and astronomy. The coursework, assignments, and examinations emphasize developing a basic understanding of geoscience processes and concepts rather than memorization of terms, definitions and facts. Specific objectives of the course in three areas – content, skills and attitudes – are:

1) Content objectives

- Develop an understanding of the basic characteristics, history, and processes of Planet Earth.
- Enhance understanding of the interconnection between various Earth processes and topics.
- Emphasize potential human effects on Earth processes and related environmental issues.
- Increase knowledge and understanding of fundamental Earth science subjects such as natural resources, energy, natural hazards, and the environment, that are important to our future.
- Consider the fundamental Earth science topics that are relevant to future teachers.

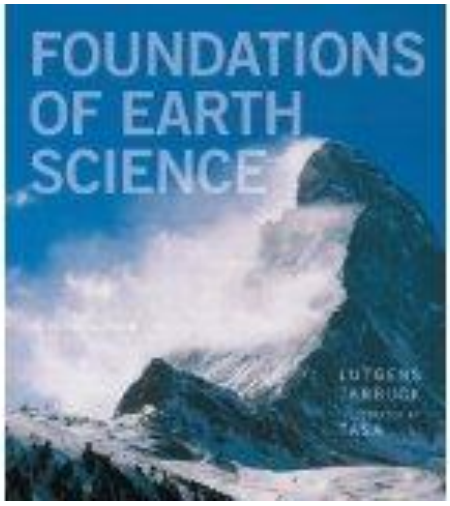
2) Skill objectives

- Gain experience in problem solving associated with complex science issues.
- Practice some analysis techniques that are useful in science, including graphing, map interpretation, visualizing three-dimensional features and understanding the concepts associated with scale – particularly for very large time periods or distances.

3) Attitudinal objectives

- Enhance appreciation of modern scientific study.
- Gain confidence in understanding and using scientific methods and information.
- Recognize the relevance of Earth science and study of Planet Earth to our daily lives and our future.
- Increase our appreciation of the Earth and our environment.

TEXTBOOK: *Foundations of Earth Science*, 7th Edition, Lutgens and Tarbuck, 2014 (be sure to get the **7th edition**; it is possible to use the 6th edition – the content is almost all the same – but it takes some extra work because not all page numbers and figure numbers are the same in the two editions). There is a brief **Study Guide** to the textbook available at: http://web.ics.purdue.edu/~braile/EAS100online/studyguide7th.pdf (and in the **Course Contents** area on **BB Learn**). You can obtain the textbook from local bookstores or you can purchase new or used copies online (such as amazon.com). It is also possible to rent an eText version (digital access for 6 months) of the text from coursesmart.com or other online sources. More information on editions, options and obtaining the textbook can be found at: http://web.ics.purdue.edu/~braile/eas100/Textbook.2014.pdf.



Foundations of Earth Science,
7th Edition, Lutgens and Tarbuck, 2014

REQUIREMENTS: Because there is no scheduled lecture time in an online course, the majority of learning comes from reading the textbook and other materials, and thus requires more independent study and emphasizes completion of assigned learning activities such as chapter quizzes, and homework and writing assignments. A brief description of the requirements:

1) **Assigned reading** (listed below – approximately two chapters per week in the textbook; the **Due Dates** file on Blackboard Learn also lists the reading assignments and due dates for all assigned work). Each week's reading assignment and chapters will be introduced with a PowerPoint file (converted to pdf format for easier accessibility) on Blackboard (**BB Learn**) which should be viewed for instructions and brief descriptions of the most important concepts contained in the chapter. The **Study Guide** to the textbook should also be useful during reading and review before exams.

2) **Midterm and final exam** (weeks 5 and 8). Exams will be conducted on campus and will be regular pen and paper exams with some multiple choice and some short answer questions. We will schedule a room at times convenient for you. There will be alternative arrangements for those students who cannot meet at the scheduled times or cannot take the exam on the Purdue West Lafayette campus. **If you cannot take the exam on campus**, you will need to arrange for a proctor (you will need to request the proctor information and proctor form from L. Braile at braile@purdue.edu) and the exam will be delivered to the proctor who will administer the exam to you. Exams are closed book, but you will be able to bring a **3" x 5" "Study Card" (one card (!), both sides)**, with study information written on it, to the exams.

3) **Chapter quizzes** (located in the **Quizzes Folder** on the **Course Content** page on the EAS 10000 Y01 home page on BB Learn; just click on the quiz name, such as **Qz I**, to start the quiz) to be completed online after reading each chapter (approximately two chapters per week). Quizzes are intended to provide a quick check on your reading of the assigned pages in the textbook. Quizzes generally consist of about 10 multiple choice or True/False questions (Quiz I has only 5 questions), are "open book", and are completed online (see **Quizzes** Folder on the **Course Content** page of the **EAS 10000 Y01** home page on **Blackboard Learn**). Note that in Week 2, there is one quiz (Qz 3) that covers the assigned reading pages in Chapters 3 and 4 of the textbook. Similarly, in Week 6, there is one quiz (Qz 11) that covers the assigned reading in chapters 12 and 13 of the textbook.

   Quizzes are timed (15 minute limit) and must be taken in the prescribed time period (days or hours before the due date deadline – 11:59 p.m. on the date shown on the **Due Dates** file). Also note that the quiz due date is about one week after the assigned chapter reading week to provide a little extra time in case you get behind in the schedule.

Because there have been instances last semester of BB Learn crashing (as well as student computer or Internet problems) that prevented students from completing a quiz that had been started, we allow the quiz to be taken a maximum of three times. However, any quiz trials **must be completed** before the listed deadline – it is a firm deadline. We also built in a little extra time into the quiz deadlines at the beginning of the semester as some people may not be able to obtain the textbook immediately. **Also, please verify that your quiz score is entered on the BB Learn Grade Book before the deadline.**

The quizzes are timed (15 minutes maximum; you should be able to complete each quiz in less than 10 minutes). It is important that you have thoroughly read the chapter before taking the quiz. You can use your book during the quiz (so don't worry about memorizing), but the duration of the quiz requires that you are familiar with the material and the organization of the chapter before taking the quiz. See **Due Dates** file (on the **Course Content** page on the EAPS 10000 Y01 home page on BB Learn) for due dates of quizzes (and all assignments).

Be sure to read the assigned chapter before taking the quiz (as the quiz is timed); don't wait until "the last minute" to take the quiz; and check the grade book after you have completed and submitted the quiz (the online quizzes are graded automatically and score posted on the grade book just after completion) to verify that your score is recorded. Also, if you wait until the due date to take quizzes, you might forget to complete it on that day before 11:59 p.m. (Eastern time – as that is where BB Learn processes at Purdue).

4) **Homework** (**Hw**, 6 assignments) See **Directions for Submitting** document (on **Course Content** page on the EAPS 10000 Y01 home page on Blackboard) for information for submitting **Hw** and **WA** assignments. See **Due Dates** file (on **Course Content** page) for due dates of all assignments. Be sure to check your grades on Blackboard. **Late homework and writing assignments <u>are</u> accepted.** Some points will be deducted for homework or writing assignments turned in late. Homework assignments 1-4 and Writing Assignments 1-2 turned in after August 5 will be subject to a 25% deduction in points for being late. All required work must be completed and submitted by Friday, August 8.

5) **Writing Assignments** (**WA**, 3 assignments) ~one-and-one-half-page papers (short research papers), due about every 2-3 weeks, on topics covered during the previous weeks. More information on the writing assignments, including detailed instructions, is contained in **WA 1**. See **Directions for Submitting** document (on **Course Content** page on the EAPS 10000 Y01 home page on BB Learn) for information and options for submitting Hw and WA assignments. See **Duedates** file (on **Course Content** page on the EAPS 10000 Y01 home page on Blackboard) for due dates of all assignments.

POLICIES AND SUGGESTIONS FOR SUCCESS IN EAPS 10000 Y01:

1) **An online course requires significant independent work, dedication and personal organization to complete assignments on time and not get behind with the course material.** Because there is no required lecture, many people assume that an online course is easier or takes less time than a regular lecture class. However, you will likely find that this course will take about the same amount of time (about 5-7 hours per week) that you would spend in a regular lecture class (attending lecture, reading in the textbook, completing assignments, and study time). **In addition, because this class if offered in the 8-week summer session, you may find that you need to spend double that time to complete the required work and do well in the class. Your learning (and grade) is dependent on your effort.** It is also important to closely follow the directions for assignments. We also suggest that you print out (or save on your computer) the **Syllabus**, **Due Dates** and **Study Guide** (to textbook) files for easy access during the semester. Note that updates to these files may be made during the semester. We will notify you of any major change in the information in these documents. It will also be useful to view the **Updates** file on a regular basis, particularly before the two exams, as information on the exams will be posted there. All of these files will be available from the **Course Content** page of **Blackboard**.

2) **Do your own work!** Purdue's statement on academic integrity can be found at http://www.purdue.edu/odos/osrr/academicintegritybrochure.php. We encourage you to review this document. **Also, be sure to read the information on plagiarism in Writing Assignment 1 (WA 1).**

3) Be sure to view the **Weekly PowerPoints** (converted to pdf files, in a folder on the **Course Content** page on the EAPS 10000 Y01 home page on Blackboard) for each week and chapter. The PPTs will include useful information about the most important chapter topics as well as additional information. For optimum viewing of the PPTs on Blackboard, set your browser to full screen as the normal view reduces the sizes of the images.

4) **Technology/software needs.** You will need a reasonable internet connection (**Firefox** or **Internet Explorer** recommended) and browser for access to Blackboard and the ability to open **MS Word** and PDF files (such as Adobe Reader, free download). It will be useful for most of you to be able to edit MS Word files including inserting images or graphics/shapes and to be able to convert an MS Word (or other word processing program) to PDF format. You can download **Open Office** (http://www.openoffice.org/) for free for editing and converting MS Word files to PDF format.

   If you have **Excel** or similar software, you can use it to create graphs that are needed for some of the homework assignments. You can also complete the graphs "by hand" and scan the page to include in your completed homework file. See **Submitting Assignments** section below. Printing some documents and the materials is also recommended but not required.

   We suggest that you print out the **Syllabus**, **Directions for Submitting** document and **Due Dates** files for convenient reference through the semester. Occasionally, a few files will open/download slowly (due to large file size or poor connections) from Blackboard, so please be patient. Sometimes, you will need to go back and open again to correct the slow connection – this can be a Blackboard, Internet or your computer and software issue..

5) **Submitting assignments** (Homework [**Hw**] and Writing Assignments [**WA**]). See **Directions for Submitting** document (on **Course Content** page on the EAPS 10000 Y01 home page on Blackboard) for information and options for submitting **Hw** and **WA** assignments. See **Due Dates** file (on **Course Content** page on the EAPS 10000 Y01 home page on Blackboard) for due dates of all assignments. Please pay particular attention to the instructions in the assignments as grade points will be deducted for not following directions as well as incorrect answers. **Always save a copy of any submitted assignment on your computer (or a photocopy)!** Assignments can be submitted in any of the following ways (methods **a.** and **b.** are preferred). In general, the first method (**a.**) will be the easiest and is the preferred method. For assignments submitted electronically but not through Blackboard, please use a file naming convention like **Hw1.YourName.doc** or **Hw1.YourName.pdf**.

   a. Electronic file, submit Online through BB Learn (see **Directions for Submitting** document).
   b. Electronic file, complete or create on your computer, then send as an email attachment.
   c. Complete by hand on a paper copy of the homework assignment, scan and submit online.
   d. Hard copy (paper copy), deliver to TA or mail (USPS) to: L. Braile, EAPS, Purdue University, 550 Stadium Mall Dr., West Lafayette, IN 47907-2051. If you use this method, be sure to notify us by email and send your assignment early enough to be received before the deadlines.

6) **Updates** on course information, such as upcoming exam and exam results information, and changes will be available on the **Updates** file (on **Course Content** page on the EAPS 10000 Y01 home page on Blackboard). **Please check this file regularly.** Time-sensitive and important announcements will be posted on the **Updates** link (left side of home page) on Blackboard.

7) **Communication:** Please use the email addresses listed above for communication with the course instructor or TA. Also, please use your Purdue email account and put you name at the bottom of the email message (it is difficult to identify and find email messages when received from "joe26@gmail.com" or similar addresses).

GRADING: Grades for the course will be assigned from the total of points from the exams, chapter quizzes and homework/assignments categories. Point totals for the various requirements are:

Requirement	**Points Possible**
Exams (2)	300
Quizzes (14)	140
Homework (6)	170
Writing assignments (3)	120
Total	**730**

Grading will be on an "adjustable curve", not on a straight scale (>90% = A, 80-89% = B, 70-79% = C, etc.), or a fixed curve (top 10% = A, next 20% = B, next 40% = C, etc.). In past years, most students have done reasonably well in this course and about 40-60% of the class receives a grade in the A to B range. After each exam, we will provide a score average and range and an approximate letter grade equivalent table as an indication of how well you did on the exam. The letter grade at the end of the semester will be determined from the point total (out of 730 possible points). The +/- grade system (A, A-, B+, B, B-, C+, C, etc.) is used for the final letter grade for the course.

To estimate your grade at any time in the semester, add up the points earned on graded assignments, and the possible points on those assignments; then calculate a percentage. You can use the straight scale (see above) to estimate your letter grade. For example, after the midterm exam, if your scores are: **Qz I** (10/10), **Qz 1** (10/10), **Qz 2** (7/10), **Qz 3** (9/10), **Qz 4** (0/10, missed deadline), **Qz 5** (10/10), **Qz 6** (8/10), **Qz 7** (10/10), **Hw 1** (19/20), **Hw 2** (26/30), **WA 1** (36/40), **Midterm Exam** (128/150), the total points are **268/320** which is **84%**, so the estimated grade would be a **B**. However, the actual grade scale (**"curve"**) is usually a little "easier" than the straight scale, and we also use the +/- system for the final letter grade, so the **84%** might be a **B or a B+**, or be close to, but not quite, an **A-**. Of course, the grade calculations early in the semester may not produce very good estimates of your final grade. Also, scores on the last few assignments (Qz 10-13, Hw 5 and 6, WA 3, and the Final Exam) near the end of the semester, can significantly affect your final point total, and therefore, the final letter grade. Please note that the total number of points calculated by Blackboard and reported on the **My Grades** page is not always accurate, so you should use the method described above to calculate the percentage. Also note; it is very possible to have perfect scores (all "10's") on quizzes, so if you have worked ahead on your quizzes and have perfect or near-perfect scores on your quizzes, it may distort your grade estimate. For example, if after the midterm exam, you have completed all quizzes with a score of 10, but have some low grades on Hw or WA assignments or on the Midterm Exam, the grade estimate made at that time may be an "over-estimate" of the grade that you are likely to have at the end of the semester.

Grades for quizzes, exams and assignments will be available on Blackboard Learn (https://mycourses.purdue.edu/). If you think that you have a problem with your grades, please contact me before the last day of class.

READING ASSIGNMENTS: EAPS 100 Online – Assigned Reading – Lutgens and Tarbuck, *Foundations of Earth Science*, 7th edition, Prentice Hall, 2014 (not all pages in the text are included in the Assigned Reading). See the Due Dates file for the quizzes associated with each chapter and the due dates for completing the online quizzes. Note that Quiz I (I not 1) is associated with Chapter I to be consistent with the textbook chapter numbering. Also, note that in Week 2 and Week 6 we cover parts of three chapters in the textbook. Major concepts and important terms in each chapter are also listed.

Week	Chapter	Assigned Pages	Major Concepts	Important Terms
1 June 16-20	**I – Introduction to Earth Science**	2 – 21	Earth science, spheres, systems, scale, resources, environment, hazards, scientific inquiry	Lithosphere, hypothesis, theory, scientific method

1 **June 16-20**	**1 – Matter and Minerals**	22 – 43	Physical properties of minerals, mineral resources, chemical composition	Mineral, rock, bonds, isotopes, silicate, silicon-oxygen tetrahedron
2 **June 23-27**	**2 – Rocks: Materials of the Solid Earth**	44 – 75	Rock cycle, rock classification, weathering	Igneous, sedimentary, metamorphic, magma, felsic (silicic), mafic
2 **June 23-27**	**3 – Landscapes Fashioned by Water**	76 – 84, 98-110	Hydrologic cycle, groundwater	Grand canyon, Mississippi river delta, aquifer
2 **June 23-27**	**4 – Glacial and Arid Landscapes**	118 – 135	Glaciers, ice ages	Ice sheets, till, moraine, glacial erratic, striations
3 **June 30-July 4**	**5 – Plate Tectonics: A Scientific Revolution Unfolds**	150 – 187	Evidence for plate tectonics, plate boundaries, paleomagnetism, what drives plate motions?	Continental drift, lithosphere, asthenosphere, seafloor spreading, hotspots, magnetic stripes, deep sea trenches, subduction
3 **June 30-July 4**	**6 – Restless Earth: Earthquakes, Geologic Structures, and Mountain Building**	188 – 229	Earthquakes, elastic rebound theory, seismic waves, earthquake hazards, Earth's interior structure, rock deformation, mountain building	Faults, magnitude, intensity, liquefaction, tsunami, crust, mantle, core, mountain belts
4 **July 7-11**	**7 – Volcanoes and Other Igneous Activity**	230 – 269	Volcanic eruptions, basaltic and rhyolite/andesite volcanism, shield volcanoes, composite (strato-) volcanoes, intrusive igneous activity, plate tectonics and igneous activity, volcanic hazards	Viscosity, pyroclastic flows, basalt, rhyolite, fissure (flood) basalts, crater, caldera, plutons
4 **July 7-11**	**8 – Geologic Time**	270 – 293	Relative dating, absolute dating, correlation, fossils, radiometric dating, geologic time scale	Superposition, horizontality, cross-cutting relationships, unconformity, radioactivity, half-life, Precambrian, Paleozoic, Mesozoic, Cenozoic
5 **July 14-18**	***Midterm Exam (July 14-18)***	**Chapters 1-8**		
5 **July 14-18**	**9 – Oceans: The Last Frontier**	294 – 319	Composition of sea water, ocean bathymetry	Salinity, continental margins, deep sea trenches, continental shelf, abyssal plain, mid-ocean ridge, seamount, black smokers

5 **July 14-18**	**10 – The Restless Ocean**	320 – 351	Ocean circulation, currents, causes of currents, waves, shoreline processes, longshore current	Beaches, tides, Coriolis effect
6 **July 21-25**	**11 – Heating the Atmosphere**	352 – 385	Weather and climate, composition of the atmosphere, trace elements, structure of the atmosphere, solar heating, seasons, heat transfer (radiation, conduction, convection), human influence on the atmosphere (climate change)	Ozone, pressure, temperature, moisture content, Greenhouse effect, climate, troposphere, stratosphere
6 **July 21-25**	**12 – Moisture, Clouds and Precipitation**	386 – 390, 395 – 402, 414 – 419	Relative humidity, air stability and instability	Latent heat, adiabatic heating and cooling
6 **July 21-25**	**13 – The Atmosphere in Motion**	420 – 441	General circulation of the atmosphere	Air pressure, Coriolis effect, high and low pressure areas, Hadley cell
7 **July 28-Aug. 1**	**14 – Weather Patterns and Severe Weather**	442 – 471	Thunderstorms, tornadoes, hurricanes, tracking hurricanes	Air masses, fronts, Fujita scale, Saffir-Simpson scale
7 **July 28-Aug. 1**	**15 – The Nature of the Solar System**	472 – 513	History of astronomy, the planets, impact cratering, Earth's moon, water and volcanism on the planets	Jupiter's moons, asteroids, comets, meteors, dwarf planets
8 **Aug. 4-8**	**16 – Beyond Our Solar System**	514 – 537, 543 – 545 (Appendix D)	Measuring astronomical distances, H-R diagram, stellar evolution, big bang theory	Stars, stellar parallax, magnitude, variable stars, galaxies, black holes, Doppler effect, Hubble red shift
8	***Final Exam (Aug. 6-8)***	**Chapters 9-16, App. D**		