Scientific Journeys: The Universe, Earth, and Life
BCUSP 140, W 07

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MW 1:15-3:20
Room 2-131

Office Hours:
M noon – 1:00 in ARC
W 3:30 – 4:30 in ARC
or by appointment

COURSE TEXT

- Bryson, B. A 2003. *Short History of Nearly Everything*. Broadway Books: New York, 544 p.
  I strongly recommend the special illustrated edition, but you can use any edition you'd like.

- Readings on E-Reserves: eres.bothell.washington.edu/eres/coursepage.aspx?cid=1037&page=docs

DESCRIPTION AND GOALS

The Universe started with a big BANG over ten billion years ago. And then what happened? Find out as we travel through the history of the Universe, concentrating on the last 4.6 billion years as we discover how unique are own planet is. We'll learn how scientists determine when ancient events occurred, and we'll also develop metaphors for understanding the magnitude of numbers like "4.6 billion." We'll see how the atmosphere evolved, and what its components are; the ins and outs of gravity; scientific ideas that explain the origins of life; and the earliest fossils on Earth. Classes alternate between active lectures and laboratory activities. This course provides a rare opportunity to integrate sciences from diverse fields at an introductory level.

SKILLS AND OUTCOMES

1. Integrate aspects of cosmology, physics, chemistry, geology and biology to talk intelligently about the early history of the Universe and Earth.
2. Write and speak clearly about fundamental geologic concepts like radiometric dating, continental drift, and hypotheses explaining the origin of life.
3. Write and speak clearly about the most fundamental biological concept: evolution.
4. Use the history of science to explain how scientists formulate and test hypotheses.
5. Work cooperatively and independently.
6. Apply what you've learned to become an aware and thoughtful citizen.

CLASSROOM ENVIRONMENT

We will meet twice a week, alternating between lecture and lab. To prepare for each class, you will need to complete the assigned readings, ensure that you understand the previous class's material, complete homework assignments and be prepared for your laboratory activity.

I will assign study groups of about four students. These students will be your lab partners and closest colleagues in the course. If everyone in a group does well on an exam, then every member of that group gets extra credit. Stay tuned for more info!

How to Succeed in this Course

- Attend class. Arrive on time.
- Participate. Read the course material, complete the homework, enter into discussions, ask questions when you are confused, and help your classmates master the material. Provide feedback to me and to your classmates so we can learn as a team.
- Use the blackboard site to follow the syllabus, homework assignments, quizzes, surveys, online discussions and even lectures.
- Complete assignments on time. You have many assignments to help you assess your mastery of the subject as we progress through the course. By increasing the number of projects, I aim to relax the pressure associated with each assignment. Assignments are due at the beginning of lecture. Late assignments will be marked down 5% of the initial grade for every late day, although the maximum penalty will be 50% of initial grade. Extensions are possible, but must be *granted in writing two days before the deadline*. I will not make exceptions to this policy.
- Complete assignments on the blackboard site or submit them to as either text or Microsoft Word documents by e-mail.
- Don't use cell phones in class.
- Using computers in class is a privilege. If I feel that your computers interfere with classroom learning, then you will need to put the computer away.
- Practice academic integrity. In particular, don't plagiarize. The UWB Student Handbook defines plagiarism as "using somebody else's ideas or expression of ideas (writing, art, music, speech, etc.) and representing them as your own." See www.uwb.edu/library/guides/research/plagiarism.html for more information.
- When you have questions, use class time, office hours, and e-mail to obtain answers. I answer email messages within 24 hours, except on weekends and holidays. I encourage scheduling an appointment to receive one-on-one help or to discuss any topic in greater depth. I will answer questions pertinent to a particular assignment up until 5 pm the day before it is due. Please let me know if you're struggling. I want you to enjoy this material as much as I do.
- I encourage students with disabilities to contact me so we can arrange accommodations. Please contact Rosa Lundborg at Disabled Student Services as well. She can be reached at 425.325.5307, TDD 425.352.3132, rlundborg@uwb.edu or dssuwb@u.wahington.edu.

Evaluation

Assignment	POINTS
2 exams (100 points each)	200
Lab Worksheets	50
Writings based on lab	100
Homework	100
Participation & Surveys	50
Total	**500**

Use the following table to convert your points to a grade. Note that the bins in this table overlap, affording me some flexibility in how I determine your grade. Thus, if your performance improves drastically, or if I feel that your assignments do not reflect your clear and innovative thinking, I will boost your grade. However, once grades are assigned, I will not change them!

Your points	470-500	450-470	430-450	410-430	390-410	370-390
Grade	3.9-4.0	3.6-3.9	3.2-3.6	2.8-3.2	2.4-2.8	2.0-2.4
Your points	350-370	330-350	310-330	300-310	<300	
Grade	1.6-2.0	1.2-1.6	0.8-1.2	0.7	0.0	

OBJECTIVES
I will present you with learning objectives each time class meets. These objectives describe the material I expect you to master, and I will base your exams on them.

EXAMS
Exams will consist of multiple choice and short answer questions. The final will only cover material from after the midterm.

Occasionally, a student may have a *legitimate* reason for missing an exam. When this happens, he or she will be able to take a make-up exam. The make-up exam will be cumulative, and it will take place immediately following the final.

LABS
All of the labs are marked in the syllabus with an icon of a microscope:  .

You will turn in two assignments for each lab activity. One will be a worksheet that asks you questions in order to guide you through the activity. The other is a more creative writing project, such as writing a dialogue between two friends that employs the evidence you found to argue the major claim in the lab. These writing assignments are short, only 2-4 pages double-spaced. I strongly recommend that you use the Academic Resource Center (ARC) or the Writing Center to gain feedback on these essays writing projects before you turn them in. Both the worksheets and the writing projects are due exactly one week after you completed the lab activity.

The worksheets and the writing projects must be submitted to me via e-mail at becca.price@unc.edu. I will send confirmation that I received your assignment. If you haven't received my confirmation but the time the assignment is due, you must assume that I have not received it.

HOMEWORK
Read the material before coming to class, review your notes and complete online quizzes. You must submit written assignments to me via e-mail.

Each Friday morning, I will post a multiple-choice quiz on the blackboard site. To receive *any* credit, you must keep retaking the quiz until you pass all of the questions. The quiz will remain available until Monday at 1:15 p.

PARTICIPATION AND SURVEYS
Complete short surveys that I distribute in class to assess your knowledge and for you to practice the kinds of questions you'll see on the exams. Join in class discussions, and help your colleagues learn the material. *Own your learning!*

COURSE OUTLINE

Week	Monday	Wednesday
1 Jan 3		*The Universe and Solar System* Bryson 2003: Intro, Chs 1 – 7
2 Jan 8 & 10	**UW1 120** *Radiometric dating and Working with BIG numbers* Bryson: Chs 8 – 11 Miller 1999: 63-76 Robyn Condit visits (2:15)	*Gravity, Time and Earth* Zimmer 2001
3 Jan 15: MLK Holiday Jan 17		*Get a Life…* Bryson 2003: Chs 18; 24 - 26 Knoll 2003: 33 – 88
4 Jan 22 & 24	*Fossils!* Bryson 2003: Chs 6; 19 - 21; 23; 28 - 29	Field Trip to Burke Museum
5 Jan 29 & 31	**Exam I**	**CC1-331** *Rocks and Slides* Reading TBA Sobel, 2005
6 Feb 5 & 7	*Everything's Evolving* Miller 1999: 81 – 164 Midterm course evaluation (Rosenberg)	Evolution
7 Feb 12 & 14	*Geology is chemistry and physics…Fun!* Bryson 2003: Chs 7 - 11; Ch 27	*Catch the drift: plate tectonics* Bryson 2003: Ch 12
8 Feb 19: Presidents' Holdiday Feb 21		*Ahhh…The Air We Breathe* Bryson 2003: Ch 17
9 Feb 26 & 28	*Crisis! Asteroids, 'Quakes, and More* Bryson 2003: Chs 13 - 15; 22	**UW1 120** *Extinctions in the fossil record (The Signor-Lipps Effect)* Signor and Lipps 1982
10 Mar 5 & 7	*The Earth is Unique* Bryson 2003: Chs 16; 30	Review
Final and Make up Mar 12	Exam begins at 1:15.	