In the past decade, the teaching of evolution in public school science classes has increasingly come under attack by advocates of “intelligent design” (ID) – the claim that the diversity and complexity of life can only be explained by recourse to an intelligent designing entity. Supporters of this view claim that they are being lead by scientific evidence to the existence of the Judeo-Christian God and that the scientific establishment has actively prevented this inference to the best explanation. They also believe that acceptance of intelligent design would not only lead to a reinvigoration of scientific inquiry but also to a renewal of traditional cultural values which are seen to be on the decline due to the acceptance of Darwinism in America. On the other hand, critics of ID believe that the movement is driven by explicitly religious motives and is merely attempting to re-invigorate “scientific creationism” – itself an earlier attempt to espouse creation in line with a literal reading of Genesis. These critics hold that ID does not function in a scientific manner and thus should be excluded from science classes.

This course aims to introduce you to this controversy. After examining ideas of creation and evolution going back to ancient times, we will briefly discuss the ideas proposed by Charles Darwin over 150 years ago – common descent with modification through natural selection. We will then briefly examine the interaction between Christianity and natural science in the years surrounding the publication of Darwin’s Origin of Species before looking at the history of American Anti-evolutionism. This will be followed by an examination of the claims of Young-Earth Creationism (a.k.a. “scientific creationism”) and a critic examination of the claims of ID, placing both within scientific, historical, philosophical, sociological and legal context.

This course fulfills learning goals 1, 2, 3 & 'A' of Track 2 (“History and Philosophy of Science”) of the CLAS Science & Society requirement.
Online Resources

The class website is located at http://lynch.faculty.asu.edu/site/origins.html – this is also accessible through Blackboard. There you will find the schedule of lectures and assignment deadlines. You will need to check this regularly for links to slides (see below) and details of required readings. We will be using Blackboard to submit written assignments and post grades.

Required Texts

Any readings will be made available online in the form of PDF files. You are required to have completed the reading before the class in question. Material from readings can – and will – form the basis of questions in the two examinations.

Copies of slides shown in class will usually be available at least 12 hours before class time. These will be in PDF format and you are encouraged to print them out so as to facilitate the taking of effective notes.

Required Work

- Examinations 2 x 30% = 60%
- Viewing Responses 3 x 10% = 30%
- Reflective Pieces 2 x 5% = 10%

Written Assignments

Viewing Responses

On three occasions you are expected to provide a short response to in-class viewings. These are due electronically (i.e. submitted through Blackboard Assignment) before the start of class (2:00pm) on the Monday after the viewing has been completed. These responses should critically engage with the viewing and be between 750 and 1000 words in length. Please include the word count on your response. Short responses will receive an automatic zero grade. You will be graded based on your argument, your knowledge and use of readings, in-class materials or external sources, and the form of your assignment (i.e. spelling and grammar).

Please note that your assignment will not be returned to you with comments. Instead, your grade will be posted on the Blackboard site once all assignments are graded. If you desire further feedback, please schedule an appointment with the teaching assistant within a week of receiving your grade. Should you wish to appeal your grade, you must first discuss the issue with the teaching assistant. If this is unsatisfying, you need to make a written appeal (not an e-mail and including the graded assignment) to the instructor before scheduling a meeting with the instructor and teaching assistant.
Reflective Pieces

Twice during the semester you will be expected to provide short reflective (~500 words) answers to questions offered. These are due *printed* before the *start* of class as indicated below. Unlike the viewing responses, you are not expected to use readings, class materials or external sources for these, but you will be expected to present a clear position with satisfactory spelling and grammar.

Late assignment policy

No late assignments will be accepted unless accompanied by certification of a genuine emergency.

Examinations

There will be two examinations for this course. As they occur during regularly scheduled class times, you will not be allowed to reschedule these and no exceptions will be made. **Note that the final examination does not occur during finals week (due to the non-standard time slot for this course) – please plan accordingly.** The examinations will begin at 2:05pm sharp and will run until 2:50pm. You will not be allowing into the classroom after 2:00pm so be on time.

The grade of “I” (Incomplete) can only be given when a student, who is doing otherwise acceptable work, is unable to complete a course (i.e. in this case the final examination) because of illness or other conditions beyond the student’s control. Documentation of this is required before the examination.

Discussion

While much of the class will be spent in traditional lectures, you are encouraged to actively participate in our learning community by asking questions and raising issues during class-time.

Attendance

While attendance will not be monitored, failure to show up for class will greatly impact your ability to successfully complete the final examination. Neither the teaching assistant nor I will provide details of missed classes. Please remember that arriving late for class is disrespectful both to your fellow students and myself and frequent late arrival will result in an instructor-initiated withdrawal.

Cell Phones

I switch my phone off when I come to class; you should do so as well.
Grading

Final numeric grades will be converted to plus/minus grades. No extra credit will be offered, so don’t ask. During the semester, grades will be posted on Blackboard. Final grades will be available on myASU sometime during finals week.

Academic Dishonesty

In the “Student Academic Integrity Policy” manual, ASU defines plagiarism as “using another’s words, ideas, materials or work without properly acknowledging and documenting the source. Students are responsible for knowing the rules governing the use of another's work or materials and for acknowledging and documenting the source appropriately.” Academic dishonesty, including inappropriate collaboration, will not be tolerated. There are severe sanctions for cheating, plagiarizing and any other form of dishonesty.

Plagiarism is an act of fraud. It involves both stealing someone else’s work and lying about it afterward. Note, that for an act to count as plagiarism, the representation does not have to be intentional. With the advent of the Internet, it has become easier for students to plagiarize. However, somewhat ironically, it has become easier for instructors to detect this form of dishonesty. I use an internet-based service to detect plagiarism. As such, I have a high probability of detecting fraud, and regularly catch plagiarists using it. Upon detection of plagiarism, you will automatically be assigned a course grade of XE denoting “failure through academic dishonesty.” Thus, as a minimum, you will fail this course and will not be able to repeat it. An ‘XE’ grade on your transcript will also preclude you from entry into any reputable graduate or professional school. The bottom-line is, DON’T PLAGIARIZE!

Honors Enrichment

Students seeking Honors credit for this course will have to meet with me to discuss readings related to course content and present material to the group. To receive honors enrichment credit you will need to attend and contribute to discussion at all meetings. Contribution will include active participation, listening to other students, and engagement with their comments and ideas. Attendance alone will not get you honors credit.

Due to the difficulty in scheduling meeting times, we can offer only one meeting time. Students seeking enrichment should e-mail me their availability by January 23rd – I will then schedule a time and e-mail you the enrichment contract details. I apologize in advance if you cannot make the scheduled meeting time.

Final Word

This syllabus is a contract between you and I - by attending this class you declare that you have read, understood, and accept all of the above. The schedule of classes provided online is definitive. Any changes to the above – or other important announcements - will be announced by e-mail through the Blackboard system. It is your responsibility to ensure that you receive all electronic communications, as returned mail will not be resent.
schedule of classes

Some notes:

~ The lists of key people and concepts below constitute the “study guide” for the examinations.
~ Any required readings are hosted on the class Blackboard under “Content” - look in the folder for a given class. You should bear in mind that these readings can form material for the examinations.
~ Slides will be available at least 12 hours before class, again under “Content” on Blackboard.

Jan 19: Introduction to the course

A brief introduction to the course and its content. After class, please carefully read the syllabus - by attending subsequent classes, you are declaring you understand and accept everything contained therein.

As announced in class, you have a 500 word reflective writing piece to bring to class on Wednesday January 26th. As a reminder, the prompt read:

"Which of the following positions best capture your view regarding the origin and development of humankind: (a) Human beings have developed over millions of years from less advanced forms of life, but God guided this process, (b) Human beings have developed over millions of years from less advanced forms of life, but God had no part in the process, or (c) God created human beings pretty much in their present form at one time within the last 10,000 years. Why do you adopt the view that you do?"

Jan 24: Viewing - “What About God?” (PBS, 2001)

We are going to spend our time watching an episode of the documentary Evolution. The episode looks at the relationship between religion and evolution by examining the struggles of students at conservative Wheaton College as they attempt to come to terms with both. We will also meet a number of individuals whom we will encounter later - in particular the evangelical creationist and founder of Answers in Genesis, Ken Ham.

You need to (electronically) submit a response piece to this viewing before class on Monday January 31st. Some guidelines for writing the short response pieces are given here. Update: The documentary is on YouTube here.

Jan 26: Nature of Science (and Religion)

Most of our time is going to be spent clarifying some issues regarding the nature of scientific inquiry. We will end with a brief discussion of religion and how believers justify religious claims.

Duane T. Gish / Henry M. Morris / David Hume / Søren Kierkegaard / Galileo / Fact / Theory / Hypothesis / Law / Methodological Naturalism / Philosophical Naturalism / Characteristics of “good” theories / Belief / Religion / a priori and a posteriori justifications for belief / The “two books” metaphor / Young Earth Creationism / Old Earth Creationism / Progressive Creationism / Evidentialism / Fideism / Faith

Jan 31: Ancient Ideas of Creation & Evolution
A brief examination of the creation narratives of the Mesopotamian, Hebrew & Greek cultures.

James Ussher / James Hutton / JEPDR / Anaxagoras / Empedocles / Democritus / Myth / Enuma Elish / Bereshit / Theogony / Documentary Hypothesis / Importance of the Global Flood to YECs / The Black Sea Flood

**Feb 2: The Design Argument**

Examination of the argument to, and from, design.

Plato / Aristotle / Thomas Aquinas / William Paley / David Hume / Cosmological, Teleological and Ontological proofs / Aristotle’s Four Causes / Physico-Theology or Natural Theology / The argument to and from design /

**Feb 8: Natural Selection & Common Descent**

Examination of Darwin’s twin ideas of natural selection and common descent. While natural selection is not the only evolutionary mechanism (Darwin himself believed this), Darwin claimed that it was a sufficient mechanism to explain the adaptations in nature that Paley and others attributed to Divine action.


**Feb 9 / 14 / 16: History of American Opposition to Evolution**

Our next three classes will be devoted to the history of American creationism. On Wednesday the 9th we will look at the development of Young Earth Creationism in the early 20th Century and its roots in Fundamentalist responses to Modernist thought. The following week we will examine the roots on the modern Intelligent Design Movement in a series of legal defeats for creationism and offer a brief history of the movement over the past twenty years.


**Feb 21 / 23: Viewing - “Judgment Day” (PBS, 2007)**

The *Kitzmiller v Dover* trial (2005) represented the first legal challenge of the teaching of intelligent design in American public school science classes. This documentary uses interviews and recreations to examine both what happened in the courtroom and the underlying tensions that ID promotion caused in Dover PA. In April 2008 the documentary won a Peabody Award and the 2008 Science Journalism Award (presented by the American Association for the Advancement of Science to honor excellence in science reporting).

You need to submit a response piece to this viewing before class on **Wednesday March 2nd.** As before,
guidelines for writing the short response pieces are given here.

Feb 28 / Mar 2: Viewing - “A Walk Through Earth History” (ICR, 1999)

By presenting a tour of the Institute for Creation Research's museum, the video offers an entryway into the Young Earth Creationist worldview. Note that the video makes a number of erroneous scientific and historical claims, some of which we will discuss over the next few weeks. Responses to the other claims can be found here.

You need to submit a response piece to this viewing before class on Monday March 21st. Some guidelines for writing the short response pieces are given here.

Mar 7: No Class.

Use the time to work in study groups to prepare for Wednesday's mid-term examination.

Mar 9: Mid Term Examination

The mid-term examination will cover the material covered from the classes between Jan 26 and February 16.

Mar 21 / 23: Class cancelled due to illness (sorry!)

Mar 28 / 30: The Central Idea of Young Earth Creationism: A Young Earth

The central claim of Young-Earth Creationism (or "scientific creationism") is that the earth is in fact significantly younger that the age claimed by mainstream science. We will examine YEC claims regarding the age of the earth and how we can confidently hold that the earth is, in fact, 4.5 billion years old.


Apr 4 / 6: Discontinuity: Detecting the Genesis “kinds”

A further important claim made by YECs is that there are discontinuities within the fossil record, gaps that are real rather than due to the nature of the process of fossilization. These gaps, they argue, delineate the "kinds" mentioned in Genesis 1. They argue that they can detect these originally created kinds (or “baramin”) using a series of techniques known as baraminology. This week we will examine these techniques and outline what we know about the evolution of what are claimed to be two “kinds” - humans and whales.

Frank L. Marsh; Duane T. Gish; Todd Wood; Baraminology Study Group; Baramin; Dynamic Creation Model; "Orchard of Life"; Discontinuity Systematics; Hybridization; Whale evolution; Human evolution; Pseudogenes;

Apr 11: Class cancelled due to a rodent.

Apr 13/18: Discontinuity: The Cambrian Explosion
One argument shared by creationists of all stripes is that the "Cambrian explosion" - a geologically rapid diversification in animal form that occurred approximately 530 thousand years ago - provides strong evidence against common descent and the efficacy of natural selection. ID proponent Jonathan Wells (whom we will devote more time to next week) claims that the event "presents a serious challenge to Darwinian evolution" and that "from nothing, we have almost everything, almost overnight." This week we will examine how scientists use the fossil record, genetic evidence, and geochemistry to come to an understanding of what happened. Needless to say, it turns out that the creationists offer a caricatured version of the evidence within the fossil record while ignoring the genetic data.

Jonathan Wells; Stephen Meyer; Louis Agassiz; Phylum; Polyphyletic view; Cambrian explosion; Stromatolites; Trace fossils; "Small shelly fauna"; Vendian (Ediacarian) fauna; Chengjiang; Burgess Shales; Lagerstatten; Post-Cambrian diversification; Homeotic genes; Possible origins of diversity in the Cambrian.

**Final Assignment:** You have a 500 to 600 word reflective writing piece to bring to class on May 2nd. No late or e-mailed submissions will be accepted. Your assignment must fit on a single page. The prompt is:

> What have you taken from this course that has changed the way you think about science, evolution and creationism? Why has that affected you?

**Apr 20 / 25: Is There A Positive Case for Intelligent Design?**

Even if Intelligent Design is an "evolved" form of Young Earth Creationism, one that has come into being because of the selective environment, it is possible that it can present a positive case for design. This week we will examine the two major ideas of modern intelligent design - irreducible complexity and complex specified information - and see whether the claims of their proponents (Behe and Dembski, respectively) are backed up by evidence. This is the last class on which you will be examined for the final examination.

William Dembski; Michael Behe; Tom Schneider; irreducible complexity; complex specified information; MacGyver Principle; "Front loading"; Evolution of the bacterial flagellum; Evolution of biochemical systems; Gene duplication; The Design Inference; Universal Probability Bound;

**Apr 27: What Does This Mean for (Science) Education?**

This class will tie together some of the threads from the semester and examine the issue of science education in this country. Instructor evaluations will also be run at the beginning of class, so try and arrive on time!

**May 2: Final Examination**

The examination will cover material from Mar 28 through Apr 25.

The final reflective assignment is due before the start of class. Remember, no late or e-mailed submissions will be accepted and your assignment must fit on a single page.