

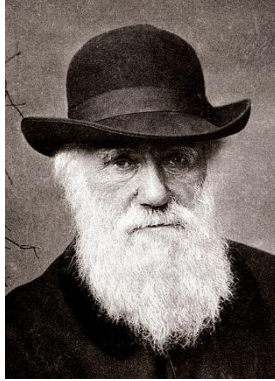
Not Just Darwin

Fall 2018

MWF 11:10 – 12:00

FSH 103

Anaximander · Empedocles · Plato · Aristotle · Epicurus · Lucretius · Zeno · Pliny the Elder · Augustine · Zhuang Zhou · Al-Jāhiz · Ibn Khaldūn · Peter Abelard · Thomas Aquinas · Gottfried Leibniz · Pierre Louis Mitchell · Immanuel Kant · Georges Cuvier · Jean-Baptiste Adanson · Robert Jameson · Robert Chambers · Thomas John H. Klippart · James Burnett · William Paley · Richard Patrick Matthew · Joseph Hooker · T.H. Huxley · Herbert Mendel · August Weismann · Asa Gray · David Starr Jordan · D'Arcy Thompson · Hugo de Vries · Karl Pearson · Walter Saunders · Reginald Punnett · Thomas Hunt Morgan · Kropotkin · Ronald Fisher · J.B.S. Haldane · Julian Huxley · Sergei Chetverikov · E.B. Ford · G.G. Simpson · Gavin de de Chardin · Richard Goldschmidt · G. Ledyard Stebbins · Delbrück · E.O. Wilson · Willi Hennig · Edward B. Lewis · Jay Gould · Richard Lewontin · Lynn Margulis · John Susumu Ohno · Peter and Rosemary Grant · Sean B. Carroll · Valen · Francisco Ayala · Michael Ruse · H. Allen Orr · Jerry Coyne · Massimo Pigliucci · Jonathan Losos · Richard Lenski · Charles Ofria · Martin Nowak · David Queller · Chris Adami · Neil Shubin · Paul Turner · Sally Otto · Hopi Hoekstra · Robert Pennock · Graham Bell · Siobhan Collins · Rosie Redfield



Dr. Zachary D. Blount

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Personal Website: www.blount-lab.org

Course Website: Moodle

Office Hours: 1 – 2:30 pm, MWF, 10 – 11 am Tu, or by appointment

Notice: It is your responsibility to know all policies, directions, stipulations, dates, etc. in this syllabus. Read it carefully and seek clarification if there is anything you don't understand.

Communicating with Your Instructor:

It is best for you to come to office hours so we can talk directly about any issues you might have. If you cannot make it to office hours, email is greatly preferred. Please be sure to include "BIOL 191" in your subject line. Please remember that email is not an instant response medium, but I will do my best to answer all emails within 24 hours on weekdays and 48 hours on weekends.

Please do not hesitate to come to me about any issues related to the course and your ability to succeed in it through the term. After all, most things are possible with good communication. I understand that we have busy, hectic lives in which the unforeseen arises. I am more than happy to work with you, but this means that you have to tell me what is going on, and preferably ASAP.

Remember: *Virtually anything is possible with good communication....and nothing without it.*

Course Description and Objectives

This course is about the big idea that is Evolution – the notion that living things change over time. It is the central feature of all life, no matter where it might be in the universe. Evolutionary theory is the basis of modern biology, and one of the most important accomplishments of science. Though most think of Darwin and evolution as synonymous, evolution is a very old idea. When he developed his concept of evolution by natural selection, Darwin actually built upon millennia of earlier thinkers; in turn, generations of biologists have subsequently built upon Darwin's work in turn. In this course we will examine the history of the remarkable idea that is evolution, and the people behind it, from the first flirtations with the concepts among the Greeks, through Darwin's discoveries and the agonized development of his concepts, to the complex and firmly established body of modern evolutionary theory and knowledge of today.

Along the way, we will look at how science itself changed, and how this influenced the development of evolutionary theory. We will also consider how evolutionary theory was influenced by other fields, how it affected still others, and how it has been sometimes perverted and exploited to support agendas like social Darwinism, scientific racism, scientific sexism, and eugenics. Finally, we will examine the ongoing denial of evolution by various flavors of creationism, looking at the movement's origins, diversity, and tactics, with a focus on its latest incarnation: intelligent design. By the course's end, I hope that you will understand:

- How the concept of evolution developed and changed over history,
- How the development of science and the concept of evolution were intertwined,
- Evolution's place as the organizing concept of biology,
- How the idea of evolution has been misused and misconstrued to support nasty agendas,
- The origins, development, and diversity of evolution denialism
- That Darwin was not, is not, and will never be the only figure in evolutionary theory, even if he was still pretty darn important to its development, as well as a nifty, brilliant, humane, decent, and kind person with whom it would have been quite lovely to have had tea.

It would be a good idea to formulate your own objectives for the course. What do you want to get out of this course? Use the space below:

Course Texts

There are five assigned books:

- *Evolution: The History of an Idea* by Peter J. Bowler
- *Darwin's Ghosts: The Secret History of Evolution* by Rebecca Stott
- *The Reluctant Mr. Darwin* by David Quammen
- *Monkey Girl: Evolution, Education, Religion, and the Battle for America's Soul* by Edward Humes
- *Tower of Babel: The Evidence against the New Creationism* by Robert T. Pennock

All but *Tower of Babel* may be purchased at the Kenyon Bookstore. Used copies of *Tower of Babel* are available for cheap online. I have also requested that all be placed on reserve at the Kenyon library. These books are required, so please acquire/access them in some form and **read them**. (They're really good, I promise!)

In addition to the required books, there will be occasional shorter readings, book chapters, and journal articles that I will either email out, hand out in class, or post on Moodle. I will notify you when I post additional readings, and you will be responsible for having done all assigned readings by the dates indicated.

Grading, Assignments, and Assessments

Overview

Grading will be considered a matter of giving points, and not of detracting them. Throughout the semester, if you have questions regarding grades, you must come and speak to me in my office. It would be a FERPA violation for me to discuss your grade with you via email.

Assessment Type	Contribution to Final Grade
Class Participation/Quizzes	20%
Exams (3)	30% (10% each)
Final	15%
Research Project	35% (2% Topic Selection) (3% Outline and Preliminary Reference List) (5% First Draft of Paper) (15% Final Draft of Paper) (10% Presentation)

Letter Grade Assignment, Subject to Revision (i.e. I'm not heartless.)

Percentage Grade	Letter Grade
94.5 - 100	A
89.5 - 94.4	A-
84.5 - 89.4	B
79.5 - 84.4	B-
74.5 - 79.4	C
69.5 - 74.4	C-
65.5 - 69.4	D
59.5 - 64.4	D-
>59.5	F

Class Participation and Quizzes (20% of final course grade)

This is a course that covers the history of really interesting and profound ideas that have been among the most provocative humanity has yet produced. To full understand them, we'll need to discuss them extensively in class. Part of your grade will be determined by your contributions to this discussion. What will constitute class participation will vary from class to class, so please come prepared for different kinds of discussions involving the full class or small groups.

If you are very introverted, shy, suffer from issues of social anxiety, or have some other reason that participation might be difficult, please contact me, and we will work out something that will allow you to participate without suffering unduly. (I've been there, so I understand.)

Part of preparation is taking extensive, written notes on the assigned reading. This is a requirement. Please bring these notes to class each day. You will be allowed to use these notes on occasional quizzes

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on the assigned reading that we will do at the start of class. You may also be asked to present these notes in lieu of quizzes.

Question Sheets – Most class sessions, I will give you a few minutes after I cover the day's material to jot down 3 to 5 questions that have occurred to you during either lecture or reading for the class. The questions, which will be turned in at the end of class, will be used as the nuclei of discussions, either in pairings, small groups, or with the full class. The point is to get you thinking about the material while it is fresh in your mind.

Exams (30% of final course grade)

This course will have three exams during the semester, each of which will cover the preceding unit of the course. The final will be cumulative, with particular emphasis on material from the last portion of the course.

Research Project (35% of final course grade)

You will do independent research on some topic related to evolution that you will decide in consultation with me. The range of topics on which you may write is quite broad, from controversies, to scientists, to the influence of the idea of evolution on a particular field. The central point of this exercise is for you to look deeply into some aspect of the course topic that you find particularly interesting. In the end, you will produce a paper that is fully referenced from scholarly sources of **at least 2500 words (not including references)**. You will also conduct a class presentation in which you will teach the class about your topic.

To facilitate you doing well on your research project, ensure that you are working on it through the semester, and thus prevent you from having to stay up until 5 am the night before turning in something that likely wouldn't turn out very well anyway, the journey to the finished project will be broken into separate tasks, each of which will contribute points to your grade. Each task builds on the previous, so credit on later parts is contingent upon having done the earlier ones.

PICKING A TOPIC (2% of final course grade): You must discuss your topic ideas with me, either by coming to regular office hours, or, if necessary, by making an appointment outside of office hours (1% of final course grade). We will settle on one, for which you will prepare a short proposal on the topic that you will turn in during class on September 21 (1% of final course grade). The proposal will be roughly ~1/2 page, and will include your provisional title, as well as 3 or 4 sentences that provide your provisional thesis statement and how you will approach the topic. (Please note that you will not be locked into the thesis and approach you describe here. Theses and approaches invariably change as you get into a project like this and learn more about your subject.) Proposals will not be accepted if you have not discussed the topic with me first.

WORKING OUTLINE AND REFERENCE LIST (3% of final course grade): The outline is your provisional scheme for how you will organize your paper. A helpful guide for how to put together an outline may be found online here:

<https://academicguides.waldenu.edu/writingcenter/writingprocess/outlining>

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This will make sure that you are thinking out the paper ahead of time, and will give you a chance to get feedback from me on your plans.

The reference list should be a preliminary list of the **scholarly** sources you will consult for and cite in your paper. Note the emphasis on the “**scholarly**” bit. The internet is full of garbage, and random blogs, listicles, social media posts, etc. don’t really cut it as proper sources. Peer-reviewed publications are the gold standard here. Here are a couple resources to help you identify what is and isn’t a scholarly resource while doing your research:

<https://www.library.illinois.edu/ugl/howdoi/scholarly/>

<http://guides.library.cornell.edu/c.php?g=31867&p=201758>

One way to find scholarly sources is to use Google Scholar (scholar.google.com) instead of standard Google.com searches.

The Kenyon librarians are also good people to go to if you have questions about sources, or if you need help finding sources or getting full-text access to sources you’ve found:

<https://libis.kenyon.edu/library-research/research-assistance>

The Kenyon Writing Center is another good resource if you find yourself stuck at any point in the writing process, or if you would like someone to help you go over any piece of your research projects before you submit them:

<https://www.kenyon.edu/directories/offices-services/the-writing-center-2/>

Please format citations according to the *Nature* style guide. This is covered quite well, here:

<https://www.lakeforest.edu/live/files/2383-biology-thesis-guide-nature-style>

Improperly formatted references will not be accepted.

Both your working outline and reference list will be due in hard copy at the beginning of class on October 5.

Formatting: 12-pt. font, double-spaced. Please use Calibri, Cambria, Arial, Helvetica, or Times New Roman. Use of Comic Sans will be grounds for expulsion from the course.

FIRST DRAFT (5% of final course grade): This will be your first stab at the full paper. By first draft, I don’t mean that you got it finished right before class. You should revise and polish it before turning it in if you want to get feedback that is useful. (A bit of extra effort put into a draft can make for much better feedback!) Please ensure that the language and tone are professional and appropriate for a scholarly work. A bit of humor is fine, but please be measured and balanced. **Please feel free to make use of the Kenyon Writing Center!** You are turning in a first draft so you can get feedback that will help you figure out where you need to make corrections, bolster arguments, fix formatting issues, and so on before you put together the final draft. You are expected to take any comments, suggestions, or criticisms seriously, and plan to use them to revise and strengthen the paper for your final draft. If you have any questions about this, please come talk to me during office hours.

For the most part, the first draft is a “if you turn it in, you will get full points” assignment. You **will** lose points if it shows evidence of being slapped together at the last moment, or if it is lacking major

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components like the cover page, references, or the body of the text. In other words, treat your first draft as you would your final draft in any other class.

A hard copy of your first draft is due at the beginning of class on October 26. You should also submit a digital copy in either .doc or .docx format via Turnitin on Moodle by 11:10 am EST on October 26. You are responsible for making sure your format is correct, and your file is uncorrupted. Late submissions will not be accepted.

Formatting: 12-pt. font, double-spaced, left-justified, 1" margins. Please use Calibri, Cambria, Arial, Helvetica, or New Times Roman. Use of Comic Sans will be grounds for expulsion from the course.

FINAL DRAFT (15% of final course grade): This will be the final, polished version of your paper, and should be a sterling, shiny example of the best work that you are capable of. It should be free of errors and formatting issues, and should incorporate the feedback you were given earlier. It should be something you feel proud of. I will read it carefully, so give it your all!

A hard copy of your final draft is due at the start of class on November 16. You should also submit a digital copy in either .doc or .docx format via Turnitin on Moodle by 11:10 am EST on November 16. You are responsible for making sure your format is correct, and your file is uncorrupted. Late submissions will not be accepted.

Formatting: 12-pt. font, double-spaced, left-justified, 1" margins. Please use Calibri, Cambria, Arial, Helvetica, or Times New Roman. Use of Comic Sans will be grounds for expulsion from the course.

PRESENTATION (10% of final course grade): You will spend the bulk of the semester researching and writing on an interesting topic, so it would be a pity not to share what you will learn with the rest of the class. You will therefore give a presentation on your research topic during the last week of class. I will give you more details on the length and other aspects as we get closer to the date. However, I expect you to discuss your presentation with me during office hours at least one week ahead of time. The default for this assignment will be a PowerPoint presentation. If you wish to do something else, you must discuss this with me and get clearance first.

On the day of your presentation, it will be your responsibility to make sure that your presentation is ready, and will work with the classroom tech. If you plan to use your own laptop, it will be your responsibility to make sure that you have the proper adaptors etc.

If you do not have a readable, presentable file when you are scheduled to present, you will lose 2 of your 10 points on the presentation. So be prepared ahead of time!

Student Responsibilities and Other Policies

Attendance

Attendance is required for all class sessions. You may have one free absence that you can use without excuse, though you will be responsible for all material covered during class as well as any assignments due. However, each additional absence will result in the loss of one letter grade on your final grade for the course, so I recommend that you use your free absence wisely. Athletes and those with religious practices that will require missing class must notify me of which classes will be missed within the first 2 weeks of the semester. No unanticipated absence may be excused without documentation from the Dean's office.

Email

You are expected to regularly check your Kenyon email regularly, as I may send course related information, notices, papers, etc. via email. Once a day would be optimal.

Technology Policy

Devices, be they laptops, cell phones, or tablets, may not be used in unless needed to accommodate a documented disability or medical condition (See Accommodation Policy, below). Cell phones must also be silenced, or put into airplane mode, for the duration of class. The first use of such devices without express permission from me will result in a warning. A second use will result in loss of 2/20 of your participation points. Any further use will be punished by expulsion from the class session in which the infraction occurs. **An expulsion due to unauthorized use of devices will be regarded as an unexcused absence no matter when during the session it occurs, meaning that it could cost you a letter grade.**

Any use of devices during an exam will result in loss of all points for that exam.

This policy is not to be mean, or (just) because I am a sour old Gen Xer who is stuck in 1995. I have some pretty good reasons for this rule. First, research has shown that multitasking is not really a thing, and attempting it places one under severe cognitive loads that reduce performance. (See: Kushniryk, A. & Levine, K.J. Impact of Multitasking on Listening Effectiveness in the Learning Environment. *The Canadian Journal for the Scholarship of Teaching and Learning* **3**, 1 – 13 (2012). Doi:10.5206/cjsotl-racea.2012.2.7) Humans are very, very bad at trying to do multiple things at the same time. Technology provides distractions that deeply interfere with paying attention in class, even when we don't notice them doing so. Second, research has shown that taking written notes leads to much better retention and comprehension than typed ones. (See: Mueller, P.A. & Oppenheimer, D.M. The pen is mightier than the keyboard: advantages of longhand over laptop note taking. *Psychological Science* **25**, 1159–1168 (2014). Doi:10.1177/0956797614524581) This is in part because handwritten notes force you to think about what you are taking notes on, and I want you to understand this stuff! Third, much of the grade for the class is based on class participation, which means you'll need to be interacting with me and with your fellow students. Again, technology tends to get in the way of that.

Civility and Personal Conduct

Discussion will be a key part of this course, so let's be paragons of how the exchange of ideas should be! To facilitate this discussion and an open, honest exchange of ideas, all students must be respectful and civil to each other, and follow the following guidelines

- Be polite in discussion, and be willing to disagree without being disagreeable.
- Allow others to finish speaking before beginning to speak yourself.
- Assume good faith and be charitable in interpreting what others say, even when you disagree strongly.
- If you feel emotionally worked up about a point you would like to make, please feel free to take a moment and calm down before speaking. If need be, you can raise two fingers to indicate you need a moment; I will make note, and will make sure to come back to you later.

Please note the statement on Sexual Misconduct and Harassment below. Any student who engages in harassment of any sort, makes another student or the instructor feel unsafe, or otherwise fails to respect the inherent worth and dignity to which all are entitled by virtue of their humanity will be expelled from class. If necessary, such behavior will be reported to Kenyon's Title IX coordinator.

Accommodation Policy

Every effort will be made to accommodate students with disabilities. If you have a physical, psychological, medical, or learning disability that requires accommodation for you to get the most out of class and classwork, please contact the Office of Disability Services at 740-427-5453. Erin Salva (salvae@kenyon.edu), the coordinator of Disability Services, will work with you to determine what accommodations are needed. If you have done this previously, please make sure that Ms. Salva notifies me. I cannot make accommodations without notification from the Disability Services Coordinator. All information and documentation of your disability is confidential.

Academic Integrity

Kenyon students are all expected to uphold the highest standards of academic integrity. Lying, cheating, unauthorized assistance, or plagiarism are absolutely unacceptable. All students are expected to know and abide by the college's rules on academic honesty. Please see the Academic Honesty and Questions of Plagiarism section in the Course Catalog. You will be held responsible for learning how to properly document, cite, and acknowledge all sources you draw upon in preparing your research project. Ignorance and carelessness are not excuses for failure to follow academic integrity policies. If you are ever unclear, please seek clarification. I cannot stress how important this is. A violation of academic honesty is one of the most serious wrongs a scholar can commit, and I am required to report potential violations. Always be sure to give yourself plenty of time to complete assignments and study for exams so that you don't put yourself in a situation in which you are tempted to do the wrong thing!

Severe Weather

Should severe weather, cataclysm, or apocalypse require the college to close or cancel classes, it will be announced via campus email or emergency broadcast. Nonetheless, if this occurs on a day when an assignment is due, the assignment should be sent to me electronically. If this occurs when an exam is scheduled, then the exam will be given in the next class. You are responsible for all assigned reading, regardless of any class cancellations. This policy may be reconsidered if the planet is destroyed.

Sexual Misconduct and Harassment

Kenyon College seeks to provide an environment that is free of gender bias, discrimination, and harassment. If you have experienced sexual harassment, misconduct, or assault, interpersonal violence, or stalking, we encourage you to report it. If you report the incident to me, I am obligated by law to notify Kenyon's Title IX coordinator of any information about the incident you provide. Kenyon College's Title IX and Intimate Partner Violence Policy is available at: <http://www.kenyon.edu/directories/offices-services/title-ix/policy/>. If you have any questions about these policies, please contact the Title IX Coordinator, Samantha Hughes, either by email (hughess@kenyon.edu) or call her at 740-427-5820. As this course's instructor, I am pledged to create and maintain a safe environment that facilitates learning.

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Tentative Schedule

This schedule of topics covered is aspirational and may be adjusted. However, much like Antony, exam and assignment due dates are constant as the northern star*. Set your course by them.

*Final paper due date may be changed to, November 28 upon 2/3 vote of the class.

Week	Day	Topic	Reading	Assignments
0	8/31 Fri	Introduction		
1	9/03 Mon	Antiquity to the Middle Ages	Stott ch. 1 – 3	
	9/05 Wed	The Late Middle Ages to the Renaissance	Bowler ch. 2 Stott ch. 4	
	9/07 Fri	Renaissance to the Enlightenment		
2	9/10 Mon	The Enlightenment,	Bowler pp. 48 - 75 Stott ch. 5, 6	
	9/12 Wed	The Enlightenment to Early 19 th Century	Bowler 75 - 95 Stott ch. 7, 8	
	9/14 Fri	Early 19 th Century	Bowler pp. 96 - 120 Stott ch. 9	
3	9/17 Mon	Early 19 th Century, catch-up	Bowler pp. 120 - 134	
	9/19 Wed	Exam I		
	9/21 Fri	Darwin – childhood, voyaging, family	Bowler pp. 141 – 155 Quammen pp. 11 – 27 Stott ch. 10	Paper Topics
4	9/24 Mon	Darwin – the geologist, the naturalist, secret transmutationist	Bowler pp. 155 – 173 Quammen pp.27 – 121 Pennock pp. 59 – 72 Stott ch. 11	
	9/26 Wed	People around Darwin		
	9/28 Fri	Darwin’s original plan for <i>The Origin</i> , Wallace and need for “An Abstract”	Bowler pp. 173 – 183 Quammen pp. 122 – 171 Stott 12	
5	10/01 Mon	<i>The Origin</i>	Quammen pp. 172 – 204 <i>On the Origin of Species</i> , First Ed. ch. 14	
	10/03 Wed	Reactions to <i>The Origin</i>	Bowler pp. 183 – 223 Quammen pp. 205 – 216	

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Week	Day	Topic	Reading	Assignments
	10/05 Fri	Darwin's later works and struggles with genetics	Fleming Jenkin, Review of <i>On the Origin of Species</i>	Outlines and Sources
6	10/08 Mon	Aftermath of <i>The Origin</i> and Darwin exits the stage	Quammen pp. 235 – 253	
	10/10 Wed	Catch-up		
10/12 Fri		October Break		
7	10/15 Mon	Exam 2		
	10/17 Wed	The Eclipse of Darwinism	Bowler ch. 7 Quammen pp. 216 – 224	
	10/29 Fri	The Eclipse of Darwinism	Bowler ch. 7	
8	10/22 Mon	Rise of genetics	Quammen pp. 224 – 228	
	10/24 Wed	Laying the foundations of neo-Darwinism	Bowler pp. 325 – 333	
	10/26 Fri	The Modern Synthesis	Bowler pp. 333 – 346 Quammen pp. 228 – 234	First Drafts
9	10/29 Mon	The Modern Synthesis		
	10/31 Wed	Modern issues in evolutionary biology	Bowler ch. 10	
	11/02 Fri	Modern issues in evolutionary biology		
10	11/05 Mon	Modern issues in evolutionary biology		
	11/07 Wed	Modern issues in evolutionary biology		
	11/09 Fri	Exam 3		
11	11/12 Mon	Human evolution	Bowler ch. 8	
	11/14 Wed	Misuses of evolutionary theory: social Darwinism, eugenics		
	11/16 Fri	Misuses of evolutionary theory: "scientific" racism, sexism, etc.		Final Papers*
12	11/19			

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Week	Day	Topic	Reading	Assignments
Mon 11/21 Wed 11/23 Fri Thanksgiving Break				
13	11/26 Mon	Creationism	Pennock ch. 1, 2,	
	11/28 Wed	Creationism	Pennock ch. 7	
	11/30 Fri	Creationism	Pennock ch. 4,5	
14	12/03 Mon	Intelligent design: origins and issues	Pennock ch. 6, 8	
	12/05 Wed	Intelligent design: Dover and the fallout	Humes - whole book (Start reading it early. It's a good read, and goes quickly.)	
	12/07 Fri	Catch-up and discussion		
15	12/10 Mon	Presentations		Presentations
	12/12 Wed	Presentations		Presentations
	12/14 Fri	Presentation		Presentation
Finals Week	12/17 Mon	Final – 6:30 pm		