

## Term Information

Effective Term Spring 2020  
[Previous Value](#) [Spring 2018](#)

## Course Change Information

### What change is being proposed? (If more than one, what changes are being proposed?)

Change course number from 3790H to 3797.01E and modify course name.

Change from Honors to Honors Embedded.

Propose to have this course qualify as a Gen Ed course for Historical Study.

### What is the rationale for the proposed change(s)?

Having honors embedded will allow a wider range of students to enroll.

This course is equally aligned with historical study as with entomology; we were encouraged by faculty in the department of history to offer this as a historical study.

### What are the programmatic implications of the proposed change(s)?

(e.g. program requirements to be added or removed, changes to be made in available resources, effect on other programs that use the course)?

none

Is approval of the request contingent upon the approval of other course or curricular program request? Yes

Please identify the pending request and explain its relationship to the proposed changes(s) for this course (e.g. cross listed courses, new or revised program)

A parallel change is being requested to change ENTMLGY 3797H to 3797.02E.

Grade and credit for 3797.01 will be dependent on completion of ENTMLGY 3797.02 during May term.

Is this a request to withdraw the course? No

## General Information

Course Bulletin Listing/Subject Area	Entomology
Fiscal Unit/Academic Org	Entomology - D1130
College/Academic Group	Food, Agric & Environ Science
Level/Career	Undergraduate
Course Number/Catalog	3797.01E
<a href="#">Previous Value</a>	<a href="#">3790H</a>
Course Title	Evolution in Darwin's World and Ours: Context
<a href="#">Previous Value</a>	<a href="#">Pre-departure Course for Evolution in Darwin's World and Ours</a>
Transcript Abbreviation	Evo Darwin Context
<a href="#">Previous Value</a>	<a href="#">Pre-depart Evol</a>
Course Description	Practice historical thinking and research skills while exploring Darwin's life, intellectual development, and theory of species origin in broad historical context. Discussions will include modern evolutionary theory and its broad applications in biology, medicine, and other human endeavors. These themes will be explored during travels abroad in the post-requisite course (ENTMLGY 3797.02E).
<a href="#">Previous Value</a>	<a href="#">This course prepares students for study abroad in England by focusing on the origins of evolutionary thought in biology &amp; medicine, Charles Darwin's life and scientific contributions (notably to evolutionary theory), and modern evolutionary theory as a working paradigm with broad applications and meaning in today's world. Students must also enroll in 3797H in subsequent summer term.</a>
Semester Credit Hours/Units	Fixed: 2

## Offering Information

Length Of Course	14 Week
Flexibly Scheduled Course	Never
Does any section of this course have a distance education component?	No
Grading Basis	Progress - Letter
<a href="#">Previous Value</a>	<a href="#">Letter Grade</a>
Repeatable	No
Course Components	Seminar, Lecture
Grade Roster Component	Lecture
Credit Available by Exam	No
Admission Condition Course	No
Off Campus	Never
Campus of Offering	Columbus

## Prerequisites and Exclusions

Prerequisites/Corequisites	Freshman standing or higher.
<a href="#">Previous Value</a>	<a href="#">Prereq: Honors standing, or permission of instructor.</a>
Exclusions	ENTMLGY 3790H, 3797H
<a href="#">Previous Value</a>	
Electronically Enforced	No

## Cross-Listings

Cross-Listings

## Subject/CIP Code

Subject/CIP Code	26.0702
Subsidy Level	Baccalaureate Course
Intended Rank	Freshman, Sophomore, Junior, Senior

## Requirement/Elective Designation

General Education course:  
Historical Study  
The course is an elective (for this or other units) or is a service course for other units

[Previous Value](#)

[The course is an elective \(for this or other units\) or is a service course for other units](#)

## Course Details

**Course goals or learning objectives/outcomes**

- 1. Students construct an integrated perspective on history and the factors that shape human activity.
- 2. Students describe and analyze the origins and nature of contemporary issues.
- 3. Students speak and write critically about primary and secondary historical sources by examining diverse interpretations of past events and ideas in their historical contexts.

**Previous Value**

- 1. *Discuss the framework and sources of evolutionary ideas in the late 18th century*
- 2. *Describe early to mid-19th century England in context (i.e., social, scientific, religious, political milieu) and Darwin's life in that world*
- 3. *Contrast Darwinian theory vs Natural Theology, and identify reasons for resistance to evolutionary theory (historically and currently)*
- 4. *Explain the tenets of modern evolutionary theory and cite evidence of its broad application and utility*
- 5. *Provide scientific evidence for the ancient evolutionary heritage of the human body*

**Content Topic List**

- Ancient Greek view of species and sources of evolutionary ideas in late 18th-Century
- Beginnings of modern geology and Victorian life in England
- Paley and Natural Theology
- Views of Darwin: Autobiography; historians' & scientists' views; Darwin's letters & Notebooks; and Tenets of Darwinian Theory
- Processes & patterns in evolution and adaptation & natural selection
- Formation & divergence of species; Testing Darwin's hypotheses; and 19th C Response to Darwinian theory
- Evolution

**Sought Concurrence**

Yes

**Previous Value**

No

**Attachments**

- Entomology for History 03.19.2019 Ohio\_State\_Course\_Review\_Concurrence\_Form-levi signed[1].pdf: Form from History  
*(Concurrence. Owner: Welty, Celeste)*
- Entomology for EEOB 03.19.2019 Ohio\_State\_Course\_Review\_Concurrence\_Form1.pdf: Form from EEOB  
*(Concurrence. Owner: Welty, Celeste)*
- Ent3790\_3797\_CLSE\_Concurrence (1).pdf: Form from CLSE  
*(Concurrence. Owner: Welty, Celeste)*
- GE rationale and assessment plan\_v2.pdf  
*(GEC Course Assessment Plan. Owner: Welty, Celeste)*
- Appendix activities and rubrics.pdf  
*(GEC Course Assessment Plan. Owner: Welty, Celeste)*
- ENT3797-01\_Darwin-Context\_Syllabus\_v2.docx: revised syllabus  
*(Syllabus. Owner: Welty, Celeste)*

**COURSE CHANGE REQUEST**  
3797.01E - Status: PENDING

Last Updated: Osborne, Jeanne Marie  
06/04/2019

**Comments**

- Please uncheck the Social Science GE subcategory that you checked off. This appears to be a mistake. I cannot uncheck that box. *(by Vankeerbergen, Bernadette Chantal on 06/04/2019 12:20 PM)*
- Revise syllabus per email communication 20 May 2019

Revised Grading Basis *(by Osborne, Jeanne Marie on 05/20/2019 01:01 PM)*

- per 4/17 mtg comments *(by Violet, Cynthia Alma on 04/17/2019 10:36 AM)*

**Workflow Information**

Status	User(s)	Date/Time	Step
Submitted	Welty, Celeste	04/12/2019 01:14 PM	Submitted for Approval
Approved	Welty, Celeste	04/12/2019 01:16 PM	Unit Approval
Revision Requested	Osborne, Jeanne Marie	04/12/2019 03:17 PM	College Approval
Submitted	Welty, Celeste	04/12/2019 03:28 PM	Submitted for Approval
Approved	Welty, Celeste	04/12/2019 03:28 PM	Unit Approval
Revision Requested	Violet, Cynthia Alma	04/17/2019 10:36 AM	College Approval
Submitted	Welty, Celeste	04/30/2019 11:20 AM	Submitted for Approval
Approved	Welty, Celeste	04/30/2019 11:40 AM	Unit Approval
Revision Requested	Osborne, Jeanne Marie	05/20/2019 01:01 PM	College Approval
Submitted	Welty, Celeste	05/23/2019 07:19 AM	Submitted for Approval
Approved	Welty, Celeste	05/23/2019 07:20 AM	Unit Approval
Approved	Osborne, Jeanne Marie	05/28/2019 11:37 AM	College Approval
Revision Requested	Vankeerbergen, Bernadette Chantal	06/04/2019 12:22 PM	ASCCAO Approval
Submitted	Welty, Celeste	06/04/2019 12:30 PM	Submitted for Approval
Approved	Welty, Celeste	06/04/2019 12:31 PM	Unit Approval
Approved	Osborne, Jeanne Marie	06/04/2019 03:43 PM	College Approval
Pending Approval	Nolen, Dawn Vankeerbergen, Bernadette Chantal Oldroyd, Shelby Quinn Hanlin, Deborah Kay Jenkins, Mary Ellen Bigler	06/04/2019 03:43 PM	ASCCAO Approval

## **SYLLABUS**

### **ENTMLGY 3797.01E**

#### **Evolution in Darwin's World and Ours: Context**

**Lecture and discussion, Columbus campus:** Tu & Th 1:50 – 2:45 PM, SP semester 2020

2 credit hours

Honors embedded: can count for honors credit, but open and accessible to non-honors students

Pre-requisites: none, freshman standing or higher; post-requisite: ENTMLGY 3797.02E

**Grade and credit dependent on successful completion of ENTMLGY 3797.02E during summer 4-week session 1, 2020**

#### **General Education: Historical Study**

##### **Instructors**

**Dr. Carol Anelli, Professor and Interim Chair, Entomology**

Email: [anelli.7@osu.edu](mailto:anelli.7@osu.edu)

Phone: 614-292-9325

Office: 216 Kottman Hall

Hours: Tu & Th 11 AM-1 PM and by appointment (please schedule 3-5 days in advance)

**Dr. Wendy Klooster, Assistant Professor of Professional Practice, Horticulture and Crop Science**

Email: [klooster.2@osu.edu](mailto:klooster.2@osu.edu)

Phone: 614-688-2637

Office: 217B Howlett Hall

Hours: TBD and by appointment (please schedule 3-5 days in advance)

##### **Brief course description**

Practice historical thinking and research skills while exploring Darwin's life, intellectual development, and theory of species origin in broad historical context. Discussions will include modern evolutionary theory and its broad applications in biology, medicine, and other areas of human endeavor. These themes will be explored during travels abroad in the post-requisite course (ENTMLGY 3797.02E).

## Full course description

This course explores Darwin's life, intellectual development, and evolutionary theory of species origin in broad historical context. Students practice historical thinking and research skills by close reading of various primary sources; secondary sources provide background and historical analyses. Mid-late 18<sup>th</sup> century sources of evolutionary ideas, and 19<sup>th</sup> century evolutionary and antievolutionary views, are read and discussed in scientific, social, religious, and political contexts. These themes are foundational for comprehending the origins and tenets of Darwin's theory, the milieu into which he dispatched the Origin of Species, modern evolutionary theory, and current day opposition to evolution. Class discussions of the book, Your Inner Fish, focus on modern evolutionary theory and its broad applications in biology, medicine, and other areas of human endeavor. The required summer 4-week education abroad component (ENTMLGY 3797.02E) provides opportunities to visit key museums and sights in London, Cambridge, and the village of Downe, England. Special visits with archivists and historians (Darwin Correspondence Project, Cambridge University; Linnaean Society, London), scientists (Natural History Museum, London), and certified guides augment course readings and discussion. Students interested in horticulture and landscape architecture can opt for additional tours, led by Dr. Klooster, of Kew Gardens and Cambridge University Botanic Garden.

## Course materials

### Required Books

Barlow, N., Editor. *The Autobiography of Charles Darwin, 1809-1882, with original omissions restored*. New York: W.W. Norton, 1958. *Free online; link below.*

Browne, J. *Darwin's Origin of Species*. New York: Grove Press, 2006.

Herbert, S. *Charles Darwin and the Question of Evolution: A Brief History with Documents*. Boston: Bedford/St. Martin's, 2011.

\*Moore, J.A. *Science As A Way of Knowing*. Cambridge: Harvard University Press, 1993.  
\*Excerpted readings posted on Carmen.

Shubin, N. *Your Inner Fish: A Journey into the 3.5- Billion Year History of the Human Body*. New York: Pantheon Books, 2008.

Supplemental readings provided on Carmen.

### Online Primary Sources

Darwin's Autobiography (unexpurgated version, N. Barlow, Editor; use in lieu of physical copy): <http://darwin-online.org.uk/content/frameset?viewtype=text&itemID=F1497&pageseq=1>

Darwin's "secret" Transmutation Notebooks (selected excerpts of Darwin's musings on natural laws, humans, Malthus, and natural selection, with searchable images: [http://darwin-online.org.uk/EditorialIntroductions/vanWyhe\\_notebooks.html](http://darwin-online.org.uk/EditorialIntroductions/vanWyhe_notebooks.html))

Commentary on Darwin's Transmutation Notebooks by Darwin historian, David Kohn, example here (others on Carmen): <https://soundcloud.com/onbeing/david-kohn-darwins>

Letters of the Darwin Correspondence (authoritative, annotated transcriptions, with summaries and extensive supportive materials): <https://www.darwinproject.ac.uk/letters/darwins-life-letters>

Excerpts from the Origin of Species: <http://darwin-online.org.uk/>

Interview with Darwin biographer James Moore, conducted by Krista Tippet <https://onbeing.org/programs/james-moore-evolution-and-wonder-understanding-charles-darwin>

Documents in the Eugenics Archive <http://eugenicsarchive.org/eugenics/>

## Goals for General Education Course in Historical Study

Students recognize how past events are studied and how they influence today's society and the human condition.

### Expected learning outcomes

1. Students construct an integrated perspective on history and the factors that shape human activity.
2. Students describe and analyze the origins and nature of contemporary issues.
3. Students speak and write critically about primary and secondary historical sources by examining diverse interpretations of past events and ideas in their historical contexts.

### Meeting the Learning Outcomes

We begin the course with background information on the history of biological thought. We learn that science traces its roots to the ancient Greeks, and that human understanding of the natural world reached new heights during the Scientific Revolution. We ascertain the critical importance of fossil evidence, which began to accumulate in the 17<sup>th</sup> century, and of geologic principles elaborated on by Charles Lyell in the 19<sup>th</sup> century, for Darwin's theory.

Guided by books authored by Sandra Herbert and Janet Browne, acclaimed Darwin scholars, we explore late-18<sup>th</sup> to early 19<sup>th</sup> century sources of evolutionary (and anti-evolutionary) ideas within cultural, political, and religious contexts. Through close reading and critical analyses of primary historical documents, together with consideration of key people and events, we develop an informed perspective of Darwin, his experiences, and his private life. We also bring into focus Alfred Russel Wallace, independent co-discoverer of natural selection as a mechanism of species origin. As our comprehension of Darwin's thinking and *modus operandi* deepen through our various readings, and comparisons of them, we come to grasp why scholars still debate exactly how Darwin arrived at his theory, and what his religious sentiments were, among other questions. We observe the many twists and turns of Darwin and Wallace's lives, gaining an appreciation for the role of contingency in history.

By examining arguments raised against evolutionary theory in Darwin's time we develop insight into the current evolution controversy. We also consider the enduring legacy of Darwin's theory in the broad applications of modern evolutionary theory, and examine the eugenics movements in the U.S. and Europe and their impact and ramifications.

Most of our classroom time is spent discussing primary and secondary sources and honing historical thinking skills. In practice, this means scrutinizing sources, reading them closely with a critical eye, seeking corroboration among them and identifying inconsistencies, and interpreting them within appropriate historical contexts. As we formulate historical narratives, both in written and oral formats, our foremost goal is to construct plausible interpretations, based on direct evidence and carefully reasoned inference.

## Course technology

For help with your password, university e-mail, Carmen, or any other technology issues, questions, or requests, contact the OSU IT Service Desk. Standard support hours are available at <https://ocio.osu.edu/help/hours>, and support for urgent issues is available 24x7.

- **Self-Service and Chat support:** <http://ocio.osu.edu/selfservice>
- **Phone:** 614-688-HELP (4357)
- **Email:** [8help@osu.edu](mailto:8help@osu.edu)
- **TDD:** 614-688-8743

## Class Attendance and Expectations for Participation

We emphasize that **15% of your grade derives from your engagement as an active participant in the course**. Plan to arrive to class or required activities on time, having completed all assignments and prepared to engage in discussion. **Attend every class or required activity**, and alert us in advance of any difficulties. **Check the Carmen website frequently, and OSU email regularly**, for updates and announcements. While abroad it is essential to show up on time for scheduled activities, remain fully engaged during meetings and tours, and show respect to all guides and fellow visitors.

## Expectations for Engagement, Attendance, Course Contributions

We expect everyone to be respectful and thoughtful of others **at all times**.

- **Tone and civility.** Whether in a classroom, museum, archive, or elsewhere we are part of a learning community; everyone must feel safe and be able to disagree amicably. Avoid inflammatory comments and sarcasm.
- **Citing your sources.** When we have academic discussions, be prepared to cite your sources to substantiate your claims and interpretations

## Length and format of assignments, quizzes, exams

**Written Response (WR) and Question Sets in Herbert's book.** Read each prompt or question carefully and answer it succinctly but in full. Written responses and answers to question sets in Herbert are evaluated by evidence of your close reading of the source (Historical Thinking Skills Scoring Rubric). Your response must show a diligent, thoughtful, "good faith" effort. See syllabus for due dates; post your WRs & Question Sets on Carmen.

**Quizzes.** Listed in the syllabus. In the class period before a scheduled quiz date, we will provide information on the material you should revisit before the quiz. Quizzes will not take more than 10-15 minutes to complete.

**Exams.** Hourly exams will often include a section on identification of important people in terms of their significance in history. For identifications, brief answers suffice, but you must explain the person's contributions and relevance. Exams also will include essay questions that focus on a major concept, theme, development, or advancement. The material to be covered in the exam and its format will be shared in class prior to the exam. Exams will indicate the points allotted for each question. The final, cumulative exam will be discussed in class, including guidance on how to prepare for it.



**Eugenics Essay.** This essay, on legislative outcomes and ramifications of the eugenics movement in the U.S., is worth 10% of your final grade and is due near the end of the semester. However, you can begin reading about, thinking about, and formulating your ideas for the essay at any time— earlier is best. The essay requires you to access online a “virtual” [eugenics archive](#). Elements that you must address in your essay, essay length, and other information are detailed in the [Eugenics Essay Assignment](#) on Carmen.

**Reflective Essay on Study Abroad Experience.** To encourage self-reflection and as feedback for your instructors as they consider course improvements, you will craft a reflective essay on the study abroad component of the course. For guidance on your essay, see the [Reflective Essay](#) assignment and AAC&U VALUE Rubric, both posted on Carmen.

## Grading Information

Assignment or category	Points	% of Total
Engagement—SP attendance & In-class contributions	100	10%
Written Responses (1.5% each; 13 offered, count 10)	150	15%
Herbert—Question Sets (1.5% each, 5 sets, all required)	75	7.5%
Quizzes (1.5% each; 6 offered, drop lowest)	75	7.5%
Exam 1	100	10%
Exam 2	100	10%
Eugenics Essay	100	10%
Final Exam (cumulative)	200	20%
Engagement & Professionalism while Abroad*	50	5%
Reflective Essay on Study Abroad (due after our travel)*	50	5%
<b>Total</b>	<b>1000</b>	<b>100%</b>

\*To be completed during the required 3797.02E course in summer 4-week session 1.

## Embedded Honors

Students who enroll in the embedded honors course for honors credit will be required to complete an additional responsive writing assignment based on the Neil Shubin ‘Your Inner Fish’ book. This writing assignment provides additional opportunity for guided synthesis of the interconnected concepts discussed throughout the course. The assignment will be due by the end of the first summer session and worth 100 points. Grades for students earning honors credit will be based 90% on standard course work and 10% on the additional writing assignment. To calculate, the point value for non-honors work (outlined in the above table) will be multiplied by 0.90, then added to the points earned (out of 100) on the honors writing assignment.

## Late assignments

**All assignments are due on the date and time designated;** late work is subject to grade reduction of 10% per day late. Post all completed assignments to Carmen unless otherwise specified.

## Grading scale

Your final grade is based on the scale below. *Grades are not rounded up.* A curve should not be expected.

93–100: A	90–92.9: A-
87–89.9: B+	83–86.9: B
80–82.9: B-	77–79.9: C+
73–76.9: C	70–72.9: C-
67–69.9: D+	60–66.9: D
Below 60: E	

## Instructor feedback and response time

### Office hours

If you cannot attend regular office hours, please schedule appointments **3-5 days** in advance.

### Grading and feedback

You can generally expect feedback on exams within 7 days. We will do our best to have quizzes and written responses graded by the next class period.

### E-mail

We will reply to e-mails within 24 hours on school days.

## Academic Misconduct

It is the responsibility of the Committee on Academic Misconduct (COAM) to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term “academic misconduct” includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct <http://studentlife.osu.edu/csc/>.

## Accessibility Accommodations

The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let us know immediately so that we can privately discuss options. To establish reasonable accommodations, we request that you register with Student Life Disability Services. After registration, make arrangements with us as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: [slds@osu.edu](mailto:slds@osu.edu); 614-292-3307; [slds.osu.edu](http://slds.osu.edu); 098 Baker Hall, 113 W. 12th Avenue. See <http://ods.osu.edu> for more information.

## Maintaining Mental Well-Being

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting [ccs.osu.edu](http://ccs.osu.edu) or calling 614-292-5766. CCS is located on the 4th Floor of the Younkun Success Center and 10th Floor of Lincoln Tower. You can reach an on call counselor when CCS is closed at 614-292-5766 and 24 hour emergency help is also available through the 24/7 National Suicide Prevention Hotline at 1-800-273-TALK or at [suicidepreventionlifeline.org](http://suicidepreventionlifeline.org)

## Sexual Misconduct/Relationship Violence

Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories (e.g., race). If you or someone you know has been sexually harassed or assaulted, you may find the appropriate resources at <http://titleix.osu.edu> or by contacting the Ohio State Title IX Coordinator, Kellie Brennan, at [titleix@osu.edu](mailto:titleix@osu.edu).

## Diversity

The Ohio State University affirms the importance and value of diversity in the student body. Our programs and curricula reflect our multicultural society and global economy and seek to provide opportunities for students to learn more about persons who are different from them. We are committed to maintaining a community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among each member of our community; and encourages each individual to strive to reach his or her own potential. Discrimination against any individual based upon protected status, which is defined as age, color, disability, gender identity or expression, national origin, race, religion, sex, sexual orientation, or veteran status, is prohibited.

**Course Schedule**—See next page.

Note: WR= Written Response

## Weekly Topical Outline

Week	Day	Topic	Pre-class Assignments (Take notes on all readings, videos, lectures)	Due Dates
1	Tu	Welcome/ Introductions/ What is history?	History: Past events or interpretive account of the past?	
	Th	Antecedents of scientific thought	Moore pp. 11-29	
2	Tu	Aristotle & Classical Greek View of Nature	Moore pp. 30-42	
	Th	St. Augustine, Scholasticism, Scientific Revolution	Moore pp. 59-76, 77-101	WR 1
3	Tu	Geology: Hooke, Steno, Cuvier, Smith, etc.	Moore pp. 102-127; week end: Sean Carroll lecture on Darwin	<b>Quiz #1</b>
	Th	Paley, Natural Theology; Paradigm Shift	Moore pp. 131-147	WR 2
4	Tu	18 <sup>th</sup> century Contexts for Evolutionary Ideas	Herbert pp. 1-7 & relevant primary sources; week end: Janet Browne lecture @ Stanford	Herbert Q #1-5 <b>Quiz #2</b>
	Th	Early 19 <sup>th</sup> Century Ideas; <i>HMS Beagle</i> Voyage	Herbert pp. 7-15 & relevant primary sources	Herbert Q #7-9
5	Tu	<b>EXAM 1</b>		
	Th	Historical Thinking Exercise: Benjamin D. Walsh and Charles Darwin	Darwin Correspondence: applying historical thinking guide	WR 3 <b>required</b>
6	Tu	Darwin's life in his own words: <i>Autobiography</i> , first half	<i>Autobiography</i> (unexpurgated, Barlow edition) pp. 11-60	WR 4
	Th	Darwin's life in his own words: <i>Autobiography</i> , second half	<i>Autobiography</i> (unexpurgated, Barlow edition) pp. 60-118	WR 5 <b>Quiz #3</b>
7	Tu	Introduction; Beginnings	Browne Ch. 1	WR 6
	Th	Darwin's Development of his Theory	Herbert pp. 15-27 & relevant primary sources	Herbert Q #10-13
8	Tu	Transmutation Notebooks	Browne Ch. 2	WR 7
	Th	Publication of <i>Origin of Species</i>	Browne Ch. 3; Herbert pp. 27-29 & relevant primary sources	Herbert Q #17-18
9	Tu	Why did it take 20 years for Darwin to publish <i>Origin of Species</i> ?	Darwin Correspondence: Darwin to Hooker, Lyell, Gray, Henslow	WR 8 <b>required</b>
	Th	<b>EXAM 2</b>		
		<b>BREAK</b>	View 2 films on Darwin & Wallace & 1 animated short on Wallace	WR 9
10	Tu	Alfred Russel Wallace	films viewed during break	<b>Quiz #4</b>
	Th	Joint publication in 1858: Darwin dishonorable?	Darwin Correspondence activity posted at Carmen	WR 10
11	Tu	What were Darwin's religious views?	Darwin Correspondence activity posted at Carmen	WR 11
	Th	19 <sup>th</sup> Century Response to the <i>Origin</i> ; controversy	Browne Ch. 4; Herbert pp. 29-34 & relevant primary sources	Herbert Q #21-22
12	Tu	21 <sup>st</sup> Century Controversy, re: evolution	Eugenie Scott lecture @ Stanford on science & religion	WR 12
	Th	Legacy (includes Eugenics)	Browne Ch. 5; Mindell article	WR 13
13	Tu	<i>Your Inner Fish</i> , Part 1 of 4	pp. 1-59	
	Th	<i>Your Inner Fish</i> , Part 2 of 4	pp. 69-96	<b>Quiz #5</b>
14	Tu	<i>Your Inner Fish</i> , Part 3 of 4	pp. 97-147	Eugenics essay
	Th	<i>Your Inner Fish</i> , Part 4 of 4	pp. 148-201	<b>Quiz #6</b>
		<b>FINAL EXAM</b> —Cumulative		
<b>Reflective essay on Education Abroad Experience is due before the end of first summer session</b>				

## GE RATIONALE

**Course background.** In Spring semester & Maymester 2017, Drs. Anelli (.7) and Klooster (.2) co-instructed a version of “Evolution in Darwin’s World and Ours” as two linked courses, both required: ENTMLGY 3790H (2 cr, pre-departure) and ENTMLGY 3797H (1 cr study abroad, UK component). EEOB, History, and Comparative Studies provided concurrences. This submission is a request to revise the two linked courses into a General Education course in Historical Study, ENTMLGY 3797.01E and 3797.02E, the latter as the UK study abroad component.

**Note on student sources.** A challenge for the instructor teaching about Darwin and evolution is deciding which sources to select for student use, due to the enormity of scholarship given impetus by the “Darwin Industry.”<sup>1</sup> A blessing is that most primary source material is freely available online. We selected key primary sources, and secondary sources that are both authoritative yet intelligible to undergraduates in any major. Additional sources (films, lectures by historians, etc.) enrich the spectrum of evidence for students’ consideration.

**Note on instructor sources.** We drew on Darwin-related primary and secondary sources, and scholarly works on the history of biological and evolutionary thought, for course content.<sup>2</sup> We consulted the literature on teaching historical thinking and benefited from the pedagogical ideas of Sam Wineburg (2001, 2018) and others; and referred to Wiggins and McTighe (2005, 2011) and other scholarly sources to inform and develop our assessment methods.<sup>3</sup>

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<sup>1</sup> The term refers to the sheer volume of primary sources— Darwin’s notebooks (containing his earliest, innermost musings while constructing his theory), correspondence (> 15,000 surviving letters), autobiography, manuscripts, and publications— and the historians of science who, in a concerted effort initiated in 1982, pored over these sources, annotated many, and published scholarly works based on them.

<sup>2</sup> The most relevant such sources are cited at the end of this document.

<sup>3</sup> Pedagogical and assessment sources include:

Andrews, Thomas, and Burke, Flannery. “What Does It Mean To Think Historically?” In *Perspectives on Teaching* (January 1) (2007). Online newsmagazine: <https://www.historians.org/perspectives>

Blain, Robert B. “Into the Breach: Using Research and Theory to Shape History Instruction.” In *Knowing, Teaching & Learning History*. Edited by Stearns, Peter N., Seixas, Peter, and Wineburg, Sam, Eds. New York: New York University Press, 2000.

Ercikan, Kadriey, and Seixas, Peter, Eds. *New Directions in Assessing Historical Thinking*. New York: Routledge, 2015.

Lévesque, Stéphane. *Thinking Historically: Educating Students for the Twenty-first Century*. Toronto: University of Toronto Press, 2008. (Especially chapter titled, “The Nature of Thinking and Historical Thinking.”)

Stanford History Education Group. <https://sheg.stanford.edu/about>

The Historical Thinking Project, Centre for the Study of Historical Consciousness, UBC. <http://historicalthinking.ca/>  
UMBC Center for History Education: ARCH. <https://www.umbc.edu/che/arch/index.php>

VanSledright, Bruce A. “What Does It Mean To Think Historically... and How Do You Teach It?” In *Social Education* 68(3) (2004), 230-233.

Wiggins, Grant and McTighe, Jay. *Understanding by Design*. 2<sup>nd</sup> ed. Alexandria, VA: Association for Supervision & Curriculum Development, 2005.

Wiggins, Grant and McTighe, Jay. *The Understanding by Design Guide to Creating High-Quality Units*. Alexandria, VA: Association for Supervision & Curriculum Development, 2011.

Wineburg, Sam. *Historical Thinking and Other Unnatural Acts: Charting the Future of Teaching the Past*. Philadelphia: Temple University Press, 2001.

## COURSE OVERVIEW VIS-À-VIS EXPECTED LEARNING OUTCOMES (ELOs)

### **ELO #1. Students construct an integrated perspective on history and factors that shape human activity**

Two of the four required course books, which students read in their entirety, focus on the development of evolutionary theory and its relationship to wider social, political, economic, religious, and intellectual contexts. The first text, Charles Darwin and the Question of Evolution (2011), was written for undergraduates by Darwin historian Sandra Herbert. It includes a selection of excerpts from twenty-nine primary source documents and discusses discoveries and explorers of natural history (e.g., Linnaeus, von Humboldt, Darwin) and sources of evolutionary ideas (e.g., Erasmus Darwin, Thomas Jefferson, George Cuvier, Thomas Malthus, Jean-Baptiste Lamarck, Alfred Russel Wallace), beginning with the late 18<sup>th</sup> century through publication and reception of the Origin of Species (1859). Herbert also includes a series of questions for students (which we use as writing prompts), a chronology (1739-1882) of the history of evolutionary ideas, and a bibliography arranged thematically.

The second required book, Darwin's Origins of Species: A Biography (2006), is by Janet Browne, reputedly our foremost Darwin biographer. This broadly integrative book is one in the series called "Books That Changed the World." Browne discusses Darwin's renowned family tree, influences, close scientific colleagues, personal life, and the publication and reception of the Origin. Like Herbert, Browne discusses William Paley's Natural Theology (1802), which in essence embodied the Victorians' view of intelligent design. Darwin embraced natural theology as a college student at the University of Cambridge; his views changed radically after his momentous, 5-year voyage around the world on the HMS *Beagle*. Browne's final chapter (also quite relevant for ELO #2) summarizes Darwin's broad, sweeping legacy, with allusions to literature, eugenics, Social Darwinism, the modern synthesis; the disciplines of paleoanthropology, experimental biology, genetics, ethology, primatology, sociobiology; the controversy between biometricians and Mendelians; and 20<sup>th</sup> century challenges to evolution.

To engage students more holistically and enrich their experience abroad,<sup>4</sup> we show PowerPoint images of art representative of the period under discussion (running a gamut from antiquity to 20<sup>th</sup> century). In London, we take students to the National Gallery; before our visit they know of "must see" paintings (e.g., we inform them that there is a single Leonardo DaVinci painting in the U.S., so they should view those in the National Gallery). We also inform them of the large number of Impressionist paintings they can view abroad.<sup>5</sup> In London we attend a performance of *Phantom of the Opera*, prior to which we discuss the opera in a scheduled class discussion.

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Winberg, Sam. *Why Learn History (When It's Already On Your Phone)*. Chicago: University of Chicago Press, 2018

<sup>4</sup> See course syllabus for 12-day education abroad itinerary.

<sup>5</sup> The majority of students in our 2017 study abroad course had never visited an art museum; when we visited the National Gallery in London, one pair of students asked Dr. Anelli if the paintings were original!

## ELO #2. Students describe and analyze origins and nature of contemporary issues

As our students comprise a range of majors, to provide context and background on the history of biological thought we begin the course with John Moore's textbook, Science as a Way of Knowing (1993). Moore's opening chapter reminds students that our most remote ancestors sought to understand the natural world and that our understanding has progressed as culture, technologies, and other entities of human endeavor evolved.<sup>6</sup> Moore highlights paleolithic art, prehistoric spiritual practices and beliefs (animism, totemism, shamanism), and nature-inspired artifacts from ancient Sumerian, Akkadian, and Egyptian civilizations. These topics are discussed with illustrations. Once abroad in London, interested students can view relevant artifacts at the British Museum, which we visit as a class (gallery 51 and related galleries: [https://www.britishmuseum.org/visiting/galleries/europe/room\\_51\\_europe\\_10,000-800\\_bc.aspx](https://www.britishmuseum.org/visiting/galleries/europe/room_51_europe_10,000-800_bc.aspx); gallery 56 and many related galleries: [https://www.britishmuseum.org/visiting/galleries/middle\\_east/room\\_56\\_mesopotamia.aspx](https://www.britishmuseum.org/visiting/galleries/middle_east/room_56_mesopotamia.aspx); gallery 64 and many related galleries: [https://www.britishmuseum.org/visiting/galleries/ancient\\_egypt/room\\_64\\_early\\_egypt.aspx](https://www.britishmuseum.org/visiting/galleries/ancient_egypt/room_64_early_egypt.aspx) ).

In subsequent Moore readings, students learn about Aristotle and the classical Greeks, who eschewed the supernatural when explaining nature. Students discover that thousands of years would elapse before hypothesis testing and experimentation became cornerstones of the scientific method (we augment this reading with a lecture on the Scientific Revolution, highlighting Bacon, Vesalius, Harvey, Hooke, Leeuwenhoek).

Moore also highlights the importance of geology and fossil evidence for Darwin's theory. Darwin maintained a lifetime friendship with Charles Lyell, the great 19<sup>th</sup> century geologist. In his essential work, Principles of Geology, Lyell cited (and discussed by Moore) the discoveries of 17<sup>th</sup> century naturalists, Steno and Hooke; Cuvier's work in vertebrate paleontology; theories on extinction and catastrophism; and Smith's geological map. Students also view a lecture by eminent evolutionary biologist Sean B. Carroll, who highlights fossil evidence vis-à-vis Darwin's evolutionary thinking.

Moore examines the paradigm shift from natural theology to evolutionary theory<sup>7</sup> and contrasts the meaning of the terms *theory*, *hypothesis*, *proven*, *fact*, and *truth* in scientific vs everyday parlance. Upon completion of these topics (end of week 3), we begin our deep dive into Darwin and evolution. We depart from Moore's textbook and foundational "content" knowledge to focus student efforts on source-based activities and historical interpretation.

Darwin scholars Herbert and Browne contextualize Linnaeus' hierarchical taxonomic system and the discoveries of early 18<sup>th</sup> century naturalists as factors contributing to the emergence of evolution as a concept in the latter part of the 18<sup>th</sup> century. (Herbert's book excerpts key primary sources.) Lamarck is generally identified as the first evolutionist owing to his book, Philosophie zoologique (1809), in which he set forth bold views of species mutability and

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<sup>6</sup> Moore wryly points up both human progress and "decline" with change over time, noting that the average Sumerian likely knew more about the natural world than today's average city dweller.

<sup>7</sup> Regarding the learning outcome "history as the study of change over time," this paradigm shift represents a significant occurrence in the history of evolutionary thought and one to which we return repeatedly in the course.



abjured essentialist notions rooted deeply in Plato and Aristotle. Fifty years later, Darwin and Wallace independently envisioned a revolutionary new paradigm that continues to bear fruit.

To underscore the relevance and significance of contemporary evolutionary theory, students read, discuss, and are quizzed on Neil Shubin's *Your Inner Fish* (2008). This highly accessible book walks students through the evolutionary history of the human body and illustrates the explanatory power of evolutionary theory. Two online films by Shubin augment his book (<https://www.hhmi.org/biointeractive/your-inner-fish-series>). A short *Scientific American* article by David P. Mindell (2008) elucidates remarkable advances and unanticipated technologies that derive from evolutionary theory (e.g. forensic genetics, vaccine development, evolutionary medicine, linguistics, and evolutionary computation in computer science).

### **ELO #3. Students speak and write critically about primary and secondary historical sources by examining diverse interpretations of past events and ideas in historical contexts**

Students will read and evaluate sources for reliability and biases, identify consistencies and inconsistencies among sources, interpret sources within their historical context, and reconcile divergent interpretations to formulate and justify their own plausible interpretations (these elements comprise the Historical Thinking Skills Scoring Rubric).<sup>8</sup> Some of the primary and secondary sources that students read have generated differing interpretations among Darwin scholars. We surface some of these discrepancies in open-ended questions, many assigned as Written Responses (WRs), which provide fodder for discussion (sample questions below).

1. Did Darwin act dishonorably when he allowed Lyell and Hooker to co-publish Wallace's 1858 manuscript on natural selection with his own evidence for the same mechanism?<sup>9</sup>
2. What were Darwin's religious views? Did he turn to atheism later in life? Provide evidence in support of your views.
3. How should we interpret the two (1<sup>st</sup> ed., 1859) or three (6<sup>th</sup> ed., 1872) religion-infused quotes that open the *Origin of Species*? Why do you think Darwin included them?
4. What was Darwin's scientific methodology? Did he proceed (as he claimed) "on true Baconian [inductive] principles," collecting facts without any theory in mind, or was he testing hypotheses and drawing conclusions [deducing]? What's your evidence?
5. Why did it take Darwin 20 years to publish his theory of species origin? Evidence?
6. What similarities and differences are there in Darwin's vs Wallace's lives and experiences? How important do you think these elements are in terms of each man's scientific thinking and achievements?

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<sup>8</sup> See Appendix for UMBC's Historical Thinking Skills Scoring Rubric—Secondary.

<sup>9</sup> One example of opposing interpretations of this particular event comes from a single author, David Quaamen, who states on his website: "I addressed the subject of Darwin's interactions with Alfred Russel Wallace, and their co-discovery of the idea of natural selection, at some length in *The Song of the Dodo*. It's the same story I tell, with different nuances, in chapter five of *The Reluctant Mr. Darwin*. A few readers have told me they found it perplexing that, having recounted the Darwin-Wallace controversy in a way sympathetic to Wallace in *Dodo*, I seemed to have switched camps and recounted it with sympathy for Darwin in the later book. Perplexed or not, they were right; that's precisely what I did." (Quaamen, a highly successful writer, is not a professional historian.)



7. How is it that Darwin and Wallace both hit upon the mechanism of natural selection independently?

### **COURSE ACTIVITIES FOR ASSESSMENT AND EVALUATION (GRADING)**

*Highlight of course activities relevant to ELO #1: Students explain cause, effect, and relevance of specific historical events/periods within the broader historical context; students understand and apply basic historical concepts, methodologies, and approaches*

Certain questions in Herbert's book, and some we wrote for Browne's book, help students develop of an integrated historical perspective. Students' answers to our reading-related questions, "Written Responses" (WRs), and Herbert's questions, are uploaded to Carmen before class time. Their uploaded responses fuel class discussion and help students (particularly the more reticent ones) verbally articulate their ideas. Sample questions follow.

1. From Herbert: In what ways were politics and science intertwined in regard to the theory of evolution between the 1780s and the 1860s?
2. From Herbert: What sort of transatlantic ties were apparent within the natural history community in the eighteenth century?
3. From Herbert: What role did the abolitionist movement play in Darwin and Wedgwood family history? Were Darwin's ideas on abolition and his ideas on the evolution of species at all related, and if so, how?
4. From Anelli & Klooster: Both Herbert and Browne discuss Chambers' book, *Vestiges of the Natural History of Creation*, published in 1844. Describe and contrast its reception among the Victorian reading public, theologians, and scientists, and the impact it is thought to have had on Darwin, and Wallace separately (see Wallace's mention of *Vestiges* in his *Recollections*, excerpted in Herbert; and Darwin's references to the book in his correspondence). What can account for this diverse array of responses?

Students read, analyze, and evaluate various sources (listed at the end of this document), and discuss their source work in class, beginning in week 4; source-based work continues through the end of the course (when students are completing their Eugenics Essay, next page).<sup>10</sup> In week 5, we introduce an experiential learning activity that we developed to enable students to practice historical thinking and research methodologies. Students work in pairs to conduct a bit of initial research on Benjamin D. Walsh,<sup>11</sup> correspondent of Charles Darwin. They begin working outside of class and continue their work in class, under guided discussion that we lead. The activity starts off with a Wikipedia biographical entry on Walsh<sup>12</sup> and moves successively to

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<sup>10</sup> Once abroad, students meet with professional historians and archivists at the Darwin Correspondence Project (University of Cambridge) and the Linnaean Society (London). Details in Syllabus, Study Abroad Itinerary.

<sup>11</sup> We selected Walsh because Anelli has conducted research on him for many years, and has given papers and published articles on his life and scientific contributions to Darwinian theory. Anelli assisted the Darwin Correspondence Project with the Walsh-Darwin correspondence.

<sup>12</sup> The Wikipedia entry on Walsh is not authored by Anelli; the author's name does not appear.

an 1870 obituary penned by Walsh's colleague, to a scholarly article on Walsh,<sup>13</sup> to the online Darwin correspondence ([Darwin Correspondence Project](#)). (Documents appended explain this activity: Historical Thinking Guide for Students & Elements of Historical Thinking, Historical Thinking Skills Scoring Rubric, Historical Thinking Activity: Benjamin D. Walsh and Charles Darwin; Source Template).

*Highlight of course activities relevant to ELO #2: Students understand history as the study of change over time; contingency (students learn that these changes were never inevitable)*

The two examples below of course work illustrate the origins and nature of contemporary issues; we also provide rationale for their inclusion in this course.

**1. Eugenics Essay.** Browne (2006) broadly contextualizes the eugenic movements in the U.S. and Europe. In our experience, many (if not most) students have little to no knowledge of these movements and their ramifications. Students will write an end-of-semester essay (see Appendix) based on their analyses and evaluation of exhibits (sources) at the virtual [Eugenics Archive](#). We do not lecture on this topic; the intent is for students to transfer and apply skills they have practiced throughout the course, guided by strategies and procedures articulated in the Historical Thinking Skills Scoring Rubric. We will welcome relevant questions in class during weeks 13 & 14 provided students come prepared to ask them.

**2. Evolution Controversy.** In our experience, most students lack substantive knowledge of Darwin and Wallace and the origins of evolutionary thought, and have little awareness of the significance of modern evolutionary theory and its broad applications. Indeed, despite the everyday impact of evolutionary theory, one in three American adults firmly rejects evolution, and only ~14% acknowledge it as “definitely true.”<sup>14</sup> Introductory biology courses typically cannot devote time to delve into historical nor contemporary issues surrounding evolutionary theory, leaving students uninformed or mired in misconceptions that hamper their ability to examine and resolve conflicting views, particularly regarding human origins. We have found it helpful for students to compare 19<sup>th</sup> vs 20<sup>th</sup>/21<sup>st</sup> century responses to evolutionary theory, as the anti-evolution arguments from both timeframes share many elements (weeks 11 & 12 in the syllabus). Browne and Herbert address the evolution controversy in historical context; Browne and Eugenie Scott (online lecture, “Science and Religion”) discuss the contemporary controversy.

### Contingency Examples

As Andrews and Burke (2007; cited in footnote #3) state, “The core insight of contingency is that the world is a magnificently interconnected place. Change a single prior condition, and any historical outcome could have turned out differently.” The central foci of this course are

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<sup>13</sup> Anelli (then Sheppard) authored this publication.

<sup>14</sup> A 2006 research article in the journal *Science* reported that significantly more adults in 32 European countries and Japan accepted the concept of evolution than did American adults. We did, however, nose out Turkey.

Darwin and evolution. From weeks 4 through 11, students are immersed in Darwin's life, experiences, thoughts, friends, and correspondents who fulfilled his requests for information about the natural world, influenced him, and were pivotal to paths he pursued. What if he hadn't gone to Edinburgh and met Peter Grant, or to Cambridge and met Henslow? Both professors were significant for Darwin in his formative years. What if his uncle had been unsuccessful in convincing Darwin's father that Darwin should be permitted to sail around the world on the *Beagle*? It's hard to imagine Darwin's musings about species mutability had he not explored the Galápagos, Cape Verde Islands, or the pampas, particularly when one considers that Darwin hardly ever left the tiny village of Downe once he started a family. What if Hooker and Lyell hadn't prevailed upon Darwin to co-publish his proprietary evidence for species origin by natural selection together with Wallace's 1858 manuscript? Darwin's life, and Wallace's, are rife with such contingencies, which we surface in discussion and assignments. To help humanize Darwin and Wallace and bring both men to life, students also view two (non-Hollywood) films and one brief animated short.

*Highlight of course activities relevant to ELO #3: Students apply critical thinking through analyzing primary and secondary sources; understand and articulate diverse historical interpretations; articulate historical arguments in a variety of forms of communication*

Students work with an array of sources (listed below), write about them (formal essay, written responses to readings, exams, quizzes), and discuss them in small groups and during class time. As noted for ELO #2, at the start of week 4 we dispense with Moore's textbook and introduce students to historical thinking and research. We will be reminding students to consult the "Historical Thinking Guide"<sup>15</sup> and the "Historical Thinking Skills Scoring Rubric"<sup>16</sup> as they prepare their Written Responses (WRs) and complete other activities. Depending upon the activity at hand, we will use all or part of the scoring rubric (i.e., specific columns of the rubric, as appropriate) to assess and/or grade students' competencies.

#### **Primary sources students will use:**

- Darwin's Autobiography (unexpurgated version, N. Barlow, Editor); online version available: <http://darwin-online.org.uk/content/frameset?viewtype=text&itemID=F1497&pageseq=1>
- Darwin's "secret" Transmutation Notebooks (selected excerpts of Darwin's musings on natural laws, humans, Malthus, and natural selection-- searchable images: [http://darwin-online.org.uk/EditorialIntroductions/vanWyhe\\_notebooks.html](http://darwin-online.org.uk/EditorialIntroductions/vanWyhe_notebooks.html) with commentary on certain key excerpts by Darwin historian, David Kohn (of the "Darwin Industry"), who helped transcribe, annotate, and contextualize the Notebooks and Darwin's correspondence <https://soundcloud.com/onbeing/david-kohn-darwins>
- Letters of the Darwin Correspondence (authoritative, annotated transcriptions, with summaries and extensive supportive materials <https://www.darwinproject.ac.uk/letters/darwins-life-letters>)
- Excerpts from the Origin of Species (also online: <http://darwin-online.org.uk/>)

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<sup>15</sup> Based on Stanford History Education Group (SHEG); VanSledright (2004)

<sup>16</sup> Historical Thinking Skills Scoring Rubric, UMBC Center for History Education

- Interview with Darwin biographer James Moore, conducted by Krista Tippet <https://onbeing.org/programs/james-moore-evolution-and-wonder-understanding-charles-darwin>
- Excerpts of 29 documents in Herbert (2011)
- Various documents in the Eugenics Archive <http://eugenicsarchive.org/eugenics/>

### Secondary sources students will use:

- Course text books
  - Browne, Janet. *Darwin's Origin of Species*. New York: Grove Press, 2006.
  - Herbert, Sandra. *Charles Darwin and the Question of Evolution: A Brief History with Documents*. Boston: Bedford/St. Martin's, 2011.
  - Moore, John A. *Science As a Way of Knowing*. Cambridge: Harvard University Press, 1993. Excerpted readings posted at Carmen.
  - Shubin, Neil. *Your Inner Fish: A Journey into the 3.5- Billion Year History of the Human Body*. New York: Pantheon Books, 2008
- Excerpts/quotes for class discussion and/or as prompts for Written Responses (WRs)
  - Bowler, Peter (1989). *Evolution, The History of an Idea*, revised edition. Chicago: University of Chicago Press.
  - Kohn, David (1985), editor. *The Darwinian Heritage*. Princeton: Princeton University Press.
  - Mindell, David P. (2008). "Evolution in the Everyday World." *Scientific American* (January issue), pp. 82-88.
  - National Academies of Science (2008). *Science, Evolution, and Creationism*.
  - Ruse, Michael (1979). *The Darwinian Revolution*. Chicago: University of Chicago Press.
  - Scott, Eugenie (2004). *Evolution vs. Creationism: An Introduction*. Berkeley: University of California Press.

### Online lectures, videos, and other sources students will use:

- Lectures (ordered chronologically by week in syllabus)
  - Dr. Sean Carroll, "Endless Forms Most Beautiful" <https://youtu.be/g6tROZ2hLE8>
  - Dr. Janet Browne, "Darwin's Legacy" [https://youtu.be/NO\\_QHEvyCYk](https://youtu.be/NO_QHEvyCYk)
  - Dr. Eugenie Scott, "Ways of Knowing" <https://youtu.be/mEnFJTgr9x4>
- Videos and films (ordered chronologically by week in syllabus)
  - Origin of Species—The Making of a Theory: <http://media.hhmi.org/biointeractive/films/OriginSpecies-Theory.html>
  - Forgotten Voyage—Life of Alfred Russel Wallace: <https://youtu.be/Z1eQ6DadodA>
  - Life of Alfred Russel Wallace, animated 7 min. film: <https://youtu.be/H8q3my7ujws>
  - Neil Shubin—Your Inner Fish: <https://www.hhmi.org/biointeractive/episode-1-your-inner-fish>
  - Neil Shubin—Your Inner Reptile: <https://www.hhmi.org/biointeractive/episode-2-your-inner-reptile>
  - Neil Shubin—Great Transitions—The Origin of Tetrapods: <https://www.hhmi.org/biointeractive/great-transitions-origin-tetrapods>
- Two excerpts from David Quammen's *The Song of the Dodo* and *The Reluctant Mr. Darwin* (see footnote 9)

## General Education (GE) Assessment Plan

<p style="text-align: center;"><b>GE Expected Learning Outcomes (ELO)</b></p>	<p style="text-align: center;"><b>Methods of Assessment</b> <i>*Direct methods are required. Additional indirect methods are encouraged.</i></p>	<p style="text-align: center;"><b>Level of student achievement expected for the GE ELO.</b> <i>(for example, define percentage of students achieving a specified level on a scoring rubric)</i></p>	<p style="text-align: center;"><b>What is the process that will be used to review the data and potentially change the course to improve student learning of GE ELOs?</b></p>
<p><b><u>ELO 1</u></b></p> <p>Students construct an integrated perspective on history and the factors that shape human activity.</p>	<p>1. Question sets for Herbert book (N=5 sets)</p> <p>2. Self-reflection essay, post-study abroad</p>	<p>1. 85% of students achieve average of 75% on the 5 question sets (= 5.3% out of 7.5% total worth) per grading rubrics</p> <p>2. 85% of students achieve a score of level 2 or better on Beloit College post-study abroad rubric (adapted from AAC&amp;U VALUE Rubric)</p>	<p>At end of term, instructors will review assessment data to determine student achievement and identify specific areas where they fell short for the ELOs. (For the Herbert book, if a particular question set scores low among students, we will determine whether they found a specific question(s) to be troublesome, and if so, address it more robustly in class discussion.)</p>
<p><b><u>ELO 2</u></b></p> <p>Students describe and analyze the origins and nature of contemporary issues.</p>	<p>1. Eugenics Essay</p> <p>2. Question/prompt: Compare/contrast 19<sup>th</sup> century vs 21<sup>st</sup> century controversy over theory of evolution</p>	<p>1. 70% of students achieve a score of 3 or better on all elements of the Historical Thinking Skills Scoring Rubric.</p> <p>2. On final exam, 75% of students can cite and substantiate five shared commonalities for 19<sup>th</sup> vs 21<sup>st</sup> century opposition to evolutionary theory</p>	<p>Instructors will discuss and determine ways to improve student achievement, and make needed adjustments to the syllabus, course activities, required student deliverables.</p>
<p><b><u>ELO 3</u></b></p> <p>Students speak and write critically about primary and secondary historical sources by examining diverse interpretations of past events and ideas in their historical contexts.</p>	<p>1. Written responses #7, 8, 10, 11. (All require close reading, analyses, and contextual interpretations of primary and secondary historical sources).</p> <p>2. In-class discussions: Students' comments demonstrate that they have read, understand, analyzed and thought about the readings. Students can provide evidence to support and justify their interpretations.</p>	<p>1. 70% of students achieve a score of 3 or better on all elements of the Historical Thinking Skills Scoring Rubric.</p> <p>2. Historical Thinking Skills Scoring Rubric—students demonstrate achievement verbally in the 2-3 range of scores.</p>	<p>For verbal aspects of ELO3: After each class meeting, instructors will discuss between themselves how well students contributed to discussion and the level of engagement.</p> <p>At end of semester, instructors will discuss what worked and what should be improved upon, in country and abroad.</p>

## Historical Thinking Guide for Students<sup>1</sup>

### What Is History?

History is a narrative account of the past, written by scholars who are typically far removed from the people and events they write about. Histories are generally written in narrative form.

Historians cultivate certain habits of mind. A few points are central to your understanding:

- Historical accounts will differ depending on one's perspective.

An anthropologist vs a historian specializing in technology have different areas of interest and expertise and will likely emphasize different aspects of the same historical period. This is obvious. But biases-- e.g., regarding gender and race-- can also frame historical narrative, as when marginalized groups are overlooked. Historians are trained to identify such omissions.

Scholars with the same area of expertise—e.g., Darwin historians— can differ in their interpretations of the past. This is because historical data and evidence are never complete (not all artifacts survive, those that do are not complete representations of the past), the historical figures are deceased, new information and analyses continue to come to light that change historians' perspectives, etc.).

While historians agree on the dates of certain past occurrences, they are really interested in asking why questions, to address causation. Since questions always remain, historians must “fill in the holes” of their narratives cautiously and judiciously, and provide a plausible interpretation for “why,” based on evidence from reliable sources and their background knowledge. The work of professional historians is evaluated based on criteria established by the community of historians, and is subjected to peer review at conferences and prior to publication.

- Historians rely on evidence to construct accounts of the past.

Professional historians use primary sources, e.g., diaries (how might a diary differ from an autobiography?), manuscripts, letters, interviews, pamphlets, meeting notes and proceedings; contemporary photographs, news film footage, speeches, newspaper articles, etc. Historians in the arts and humanities often use creative works (art, music, novels, etc.) and other artifacts (clothing, furniture, manufactured items).

Historians also utilize secondary sources, e.g., scholarly publications (peer-reviewed articles, books).

- Historians question the reliability of each piece of evidence.

Professional historians repeatedly revisit and ask questions about every source and its author.

- Historians seek both corroborating and conflicting evidence, to construct a plausible interpretation. No single piece of evidence can form the basis of a historical account.

Historians identify consistencies and inconsistencies among accounts, and construct an interpretation using information from multiple sources.

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<sup>1</sup> Historical Thinking Guide, and Elements of Historical Thinking (p. 2 this document) adapted from Stanford History Education Group, UMBC Center for History Education, and *Historical Thinking and other Unnatural Acts* (Wineburg 2001)

## Elements of Historical Thinking<sup>2</sup>

### 1. Sourcing

Sources provide evidence, but all historical sources are not equally reliable. Evaluate sources carefully.

- Who wrote or created the source? When (date)? Under what circumstances was it written?
- What type of source is it, primary or secondary? Cite all sources appropriately.
  - *Note:* A private diary, personal notebook, or letter intended only for the eyes of the addressee may be more revealing than material written for public viewing.
- Why (for what purpose) was it written/created?

### 2. Critical Reading

Focus on three things: author's claims and evidence, rhetorical devices, and omissions of the author.

- What are the author's claims or viewpoint? How strong is the author's evidence?
- On what do you base your evaluation of the author's claims and evidence?
  - Identify language, words, phrases the author uses as persuasive rhetoric.
- What evidence has the author left out?

### 3. Corroboration

Consider details across multiple sources to determine points of agreement and disagreement.

- Examine sources for corroborating or conflicting evidence; what are other possible sources?
- Identify similarities/differences among multiple sources.
- Explain similarities/differences by comparing information and sources.
- Determine which of your sources are most reliable; use them accordingly.
- Construct claim (Element #5) based on multiple sources, and identify consistencies and inconsistencies among various accounts.

### 4. Contextualizing

Determine the historical setting for the source and factors that shape its content. *Avoid a present-day mindset.*

- Apply prior and new knowledge to determine the historical setting of each source.
  - When and where was the source created?
  - What was different then, or unique to the situation?
  - How might the circumstances in which the source was created affect its content?
- Interpret the source within its historical context, not a present-day mindset.

### 5. Claim (interpretation, argument, or thesis)

Your claim is your answer to the overarching "why" question you seek to answer. Your claim addresses causation.

- Formulate a plausible claim/interpretation based on evaluation of all sources of evidence.

### 6. Evidence

This element is inextricably tied to Element #5. See the Historical Thinking Skills Scoring Rubric.

- Marshal direct evidence from a variety of reliable sources; use evidence to justify your claim.

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<sup>2</sup> **Elements of Historical Thinking** aligns with the **Historical Thinking Skills Scoring Rubric, created by** UMBC Center for History Education, 2013. Adapted from the work of the Stanford History Education Group<sup>®</sup> and Bruce VanSledright, *Assessing Historical Thinking and Understanding: Innovative Ideas for New Standards*, (New York: Routledge, 2014).

## Historical Thinking Skills Scoring Rubric – Secondary

Criteria	Close Reading Strategies		Strategies/Procedural Concepts		Procedural Concepts	
	Sourcing	Critical Reading	Corroboration	Contextualizing	Claim	Evidence
<b>4</b>	<p><b>Identification:</b> Fully understands the meaning and content of sources.</p> <p><b>Attribution:</b> Cites all authors and all original dates of primary and secondary sources.</p> <p><b>Perspective:</b> Evaluates the reliability of sources based on the author's perspective and when and why they were produced.</p>	<ul style="list-style-type: none"> <li>▪ Questions the author's thesis and determines viewpoint and evidence to evaluate claims, highlighting what the author leaves out.</li> <li>▪ Cites accurate examples of how the author uses persuasive language and specific words and phrases to influence the reader.</li> <li>▪ Seeks answers to questions left unanswered in the source to formulate an interpretation.</li> </ul>	Constructs an interpretation of events using information and perspectives in multiple sources. Identifies inconsistencies and inconsistencies among various accounts.	Applies prior and new knowledge to determine the historical setting of sources. Uses that setting to interpret the sources within the historical context as opposed to a present-day mindset.	Formulates a plausible interpretation, argument, or claim based on the evaluation of evidence found in a variety of primary and secondary sources.	Justifies claims using appropriate direct evidence from a variety of reliable sources.
<b>3</b>	<p><b>Identification:</b> Mostly understands the meaning and content of sources.</p> <p><b>Attribution:</b> Cites most authors and most original dates of primary and secondary sources.</p> <p><b>Perspective:</b> Examines the reliability of sources based on the author's perspective and when and why they were produced.</p>	<ul style="list-style-type: none"> <li>▪ Analyzes the author's thesis, determines the viewpoint and evidence to evaluate the claims; may highlight what the author leaves out.</li> <li>▪ Cites examples of how the author uses persuasive language and specific words and phrases to influence the reader.</li> <li>▪ Notes that the author has left some questions unanswered.</li> </ul>	Explains similarities and differences by comparing information and perspectives in multiple sources.	Applies prior and new knowledge to determine the historical setting of the sources. May attempt an interpretation of some sources with a present-day mindset or with a limited application to the historical context.	Generates a reasonable interpretation, argument, or claim based on an evaluation of the evidence found in selected primary and secondary sources.	Justifies claims using some appropriate direct evidence from a variety of reliable sources.
<b>2</b>	<p><b>Identification:</b> Understands the meaning and content of sources with appropriate scaffolding and support.</p> <p><b>Attribution:</b> Cites some authors and some original dates of primary and secondary sources.</p> <p><b>Perspective:</b> Attempts to evaluate the reliability of sources.</p>	<ul style="list-style-type: none"> <li>▪ States the author's claims and evidence presented to prove those claims.</li> <li>▪ Determines the author's viewpoint.</li> <li>▪ Notes how language is used to persuade.</li> </ul>	Identifies similarities and differences in information in multiple sources.	Attempts to determine the historical setting of sources without fully understanding the historical context.	States an interpretation, argument, or claim that may or may not be based on evidence found in selected primary and secondary sources.	Justifies claims using generalizations or limited appropriate direct evidence.
<b>1</b>	<p><b>Identification:</b> Attempts to understand the meaning and content of sources with the appropriate scaffolding and support.</p> <p><b>Attribution:</b> Cites few authors and few original dates of primary and secondary sources.</p> <p><b>Perspective:</b> Does not adequately examine reliability.</p>	Attempts to identify the author's claims, viewpoint, or evidence.	Demonstrates little to no attempt to examine sources for corroborating or conflicting evidence.	Demonstrates no attempt to understand the historical setting of sources.	Does not state an original claim, argument, or interpretation.	Does not justify or support claims using appropriate direct evidence.



## Historical Thinking Activity: Benjamin D. Walsh and Charles Darwin

This activity is an introduction to historical research and thinking. You'll work in pairs to access various source materials online, and we'll discuss your critical reading of the sources in class.

### **Complete this activity in its entirety BEFORE class discussion.**

1. Acquire these documents from Carmen:
  - a. Historical Thinking Guide
  - b. Elements of Historical Thinking
  - c. Historical Thinking Skills Scoring Rubric
  - d. Source Template
  
2. Conduct a quick, initial background search of Benjamin D. Walsh, correspondent of Charles Darwin:
  - a. Read Walsh's Wikipedia entry; complete a "Source Template" for it.
  - b. From the Wikipedia site:
    - i. Access and read the reference by Riley (1870); complete a "Source Template" for it.
    - ii. Access the reference by Sheppard (2004); skim it and complete a "Source Template" for it.
      - o In Sheppard (2004), find the first pair of excerpted quotes. Consult the "Elements of Historical Thinking" document—what type of evidence do these two quotes together represent? How does this information compare with what you got from the Wikipedia site, or in Riley (1870)?
  - c. At the [Darwin Correspondence Project](#):
    - i. Use the search function to locate Walsh's first letter to Darwin; complete a "Source Template" for it.
    - ii. Locate Darwin's response to Walsh's first letter; complete a "Source Template"
    - iii. According to the website, how many extant letters of correspondence are there between Walsh and Darwin?
    - iv. Based on your research thus far, jot down 5 people/events/ideas you would want to follow up on regarding Walsh, and why.
    - v. From the main page, click on "The letters" tab. Address the questions below using tabs "Darwin's life in letters," (scroll down to [interactive histogram](#); access it for questions viii & ix, below) and "About the letters"
      - vi. Provide several reasons why these letters are so valuable for historians.
      - vii. How many total Darwin letters survive?
      - viii. Describe in narrative form what the histogram depicts graphically.
      - ix. Regarding 1860, 1868, 1871, 1875: What hypothesis could you make about the content of the letters in those years?
  - d. Explore [Darwin's timeline](#), noting various historical contexts provided on the right side of the timeline. (If you wish, click on an envelope to view letters that Darwin wrote at a given point in time.)
  - e. On a separate sheet, create a timeline of important dates in Walsh's life.

## Source Template

Student name: \_\_\_\_\_

<b>1. What type of source is it?</b>	<b>2. Who authored/created it?</b>	<b>3. When was it created?</b>
<b>4. Why was it created? Who was the intended audience?</b>		
<b>5. What are the author's claims/viewpoints? Has the author omitted anything of substance?</b>		
<b>6. On what do you base your evaluation of the author's claims/viewpoints? (look for persuasive rhetoric)</b>		
<b>7. What historical events were occurring when it was created? (contextualize the document)</b>		
<b>8. What evidence does it contribute to the topic you are studying, the narrative you are writing, or the argument you are making?</b>		

## Eugenics Essay Assignment

*Context: If we accept the premise that history is important because knowledge of it helps us to act with wisdom and empathy, as individuals and citizens, then examination of the U.S. Eugenics Movement should enrich our perspective of critical issues in contemporary society.*

To begin: Go to: <http://www.eugenicsarchive.org/eugenics/> Enter the Archive and read "Social Origins of Eugenics." Then click the link for *Next Virtual Exhibit*, and read "Scientific Origins of Eugenics." (Or, click on "Virtual Exhibit Menu" to see a list of all Virtual Exhibits.) Continue in this fashion, reading the text for the Exhibits below, for a total of 8 Virtual Exhibits. *Take notes.*

- a. "Traits Studied by Eugenicists"
- b. "Flaws in Eugenics Research"
- c. "Eugenics Popularization"
- d. "Eugenics Laws Against Race Mixing"
- e. "Eugenics Sterilization Laws"
- f. "Eugenics Laws Restricting Immigration"

Next, go to: [http://www.eugenicsarchive.org/eugenics/list\\_topics.pl](http://www.eugenicsarchive.org/eugenics/list_topics.pl) and read the "Topics" and view the Images listed below, *taking notes on each:*

- a. "Buck vs. Bell Trial"
- b. "Race Mixing and Marriage Laws," plus images 1232-1233 (Gradebook for Vivian Dobbs = Vivian Buck), images 436 & 437 (Virginia law to preserve racial integrity), image 959 (Date on which each State inaugurated its eugenical sterilization law)
- c. "Immigration"
- d. "German/Nazi Eugenics"
- e. "Criminality," plus Image 1247
- f. "Mental Illness"

Armed with your notes and knowledge, compose a carefully written, evidence-supported essay that explains the U.S. Eugenics Movement to a novice reader, being *very careful* to avoid any hints of plagiarism. In organizing your essay, gather your thoughts and information on the various origins of eugenics (providing explanations as needed for terminology), key players, types of evidence used in support of eugenics, how the movement was popularized and legislated, and the outcomes of laws that were passed. (75 of 100 total points)

Next, select two of the opinion pieces below (*if you prefer, find two of your own and provide the links*) and identify any parallels with the U.S. Eugenics Movement. This portion of your essay should serve to illustrate the importance and relevance of history by drawing upon information that you gleaned from the Eugenics Archive. Provide a strong conclusion to your essay, based on your research, in which you argue for the value of historical study. (25 of 100 total points)

### Opinion Pieces:

"Britain is an Immigrant Nation"-- <https://nyti.ms/2mqeVWK>

"A Little Reality on Immigration"-- <https://nyti.ms/2klCkol>

"Who Belongs in Trump's America?"-- <https://nyti.ms/2lO2Pq1>

"Two Consonants Walk into a Bar..."-- <https://nyti.ms/2lHfqLM>

## Post-Study Abroad Reflection Essay Evaluation Rubric

**In response to study abroad reflection essay prompts, the student demonstrates:**

	<b>3</b>	<b>2</b>	<b>1</b>	<b>0</b>
<p><b>Transfer</b> Adapts and applies skills, abilities, theories, or methodologies gained in one situation to new situations</p>	Adapts and applies skills, abilities, theories, or methodologies gained in one situation to new situations to contribute to the understanding of problems or to explore issues.	Demonstrates or explicitly explains the use of skills, abilities, theories, or methodologies gained in one situation in a new situation.	References in a passing way the use of skills, abilities, theories, or methodologies gained in one situation in a new situation.	Does not reference the use of skills, abilities, theories, or methodologies gained in one situation in a new situation.
<p><b>Reflection</b> (minimal exploration and dichotomous self-analysis vs deep exploration and multiple interrelated factors in past and future)</p>	Uses deep exploration of the topic (and its relevance to lived experience) to pose new questions of self and others based on the study abroad experience. Cites specific examples. Addresses questions fully. Makes plans or envisions a future self based on experiences that have occurred across multiple contexts, exploring complexity of context in depth.	Demonstrates strong desire to explore study abroad in depth and gain insight into lived experience thereby. Cites specific examples. Takes account of specific contexts in describing most strengths and challenges, and suggests the value of this knowledge outside of the immediate study abroad context.	Explores study abroad somewhat superficially with few or no specific examples and/or does not respond to significant parts of the essay prompts. Describes own performances with general descriptors of success and failure (bad writer, great student, etc). Minimal contextualization or reference to value outside of the study abroad context.	Responds to essay prompts with minimal surface-level answers and does not address significant parts of essay prompts. No reference to self-knowledge in responses.
<p><b>Ownership</b> (recognition of role of self and other in learning process and sense of its relevance; strategizing to achieve goals)</p>	Demonstrates clear recognition of the roles played by self and others in learning, achieving goals, and modifying plans, recognizing how own actions impact others and making adjustments accordingly, considering both successful parts of the study abroad experience and the importance of respecting others' needs and priorities.	Demonstrates recognition of the roles played by self and others in learning, achieving goals, and modifying plans.	Demonstrates limited recognition of own role in the process of learning, achieving goals, and modifying plans, although it may be primarily in passive terms (others are represented as primary agents) OR represents self as sole actor without referencing others.	Fails to demonstrate recognition of own role in learning, achieving goals, and modifying plans.

<b>Cultural Self-Knowledge</b>	Articulates insights into own cultural rules and biases (e.g. seeking complexity; aware of how her/his experiences have shaped these rules, and how to recognize and respond to cultural biases, resulting in a shift in self-description.)	Recognizes new perspectives about own cultural rules and biases (e.g. not looking for sameness; comfortable with the complexities that new perspectives offer.)	Identifies own cultural rules and biases (e.g. with a strong preference for those rules shared with own cultural group and seeks the same in others.)	Shows minimal awareness of own cultural rules and biases (even those shared with own cultural group(s)) (e.g. uncomfortable with identifying possible cultural differences with others.)
<b>Knowledge of cultural worldview frameworks</b>	Demonstrates sophisticated understanding of the complexity of elements important to members of another culture in relation to its history, values, politics, communication styles, economy, or beliefs and practices.	Demonstrates somewhat complex understanding of the complexity of elements important to members of another culture in relation to its history, values, politics, communication styles, economy, or beliefs and practices.	Demonstrates basic understanding of the complexity of elements important to members of another culture in relation to its history, values, politics, communication styles, economy, or beliefs and practices.	Demonstrates no understanding of the complexity of elements important to members of another culture in relation to its history, values, politics, communication styles, economy, or beliefs and practices.

Adapted at Beloit College with permission from *Assessing Outcomes and Improving Achievement: Tips and Tools for Using Rubrics*, edited by Terrel L. Rhodes. Copyright 2010 by the Association of American Colleges and Universities.  
 VALUE: Valid Assessment of Learning in Undergraduate Education.

## Written Response #7-- Darwin's Transmutation Notebooks, with comments by historian David Kohn

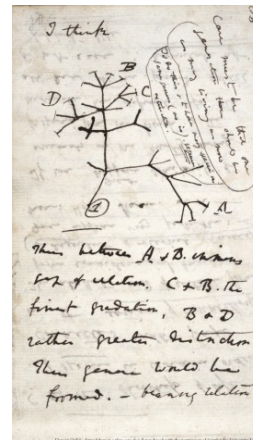
For this Written Response, access the website, *Darwin Online*:

[http://darwin-online.org.uk/EditorialIntroductions/vanWyhe\\_notebooks.html](http://darwin-online.org.uk/EditorialIntroductions/vanWyhe_notebooks.html)

### How to proceed:

1. Read the opening paragraph on *Darwin Online*, titled "Darwin's notebooks and reading lists," for context.
2. Listen to each passage listed below. Each passage has an MP3 file associated with it on our course webpage that features Dr. Kohn discussing the passage and his analysis of it.
3. Take notes on each passage (10 total passages). You may have to "pause" your MP3 player to jot down your notes.
4. While listening to Dr. Kohn, also have open on your computer the text of the particular passage (from the *Darwin Online* website). This will allow you to better follow Dr. Kohn's comments.

*Note:* Sandra Herbert's book (pp. 77-78) also includes excerpts from Notebook B.



### How to find the specific passages from the *Darwin Online* website:

1. The Darwin Notebooks are searchable. To get started, scroll down to the **Notebook** of interest, click on "text."
2. Inside the **Notebook**, you can:
  - a. Scroll down to the page number of interest—e.g., for the MP3 file for Notebook D36-37, you should locate pp. 36-37 inside Notebook D.
  - b. Search the Notebook itself— simply do a "find" on the open page of the text of the notebook (do *not* use the "search" field).

*Note:* You can view Darwin's handwriting (!) and the textual transcription of it by clicking on "text & image" from the homepage of *Darwin Online*. (Clicking on the third option, "image," will show you only his handwriting-- which can be difficult to decipher-- without the transcription.)

### **Questions for Written Response**

#### **UPLOAD YOUR ANSWERS AT CARMEN**

1. **Natural laws.** Summarize and synthesize an explanation of Darwin's musings about and search for natural laws. Quote Darwin as needed to support your answer. (As you listen to the passages that follow, think about who and what influenced his thinking, what evidence he was considering and his assessment of that evidence, and what he was ultimately striving to achieve.) **Six MP3 files: Notebook B 45; 101-102; Notebook D 18-19; 36-37; 72; Notebook N 36.**
2. **Humans.** Discuss, briefly, Darwin's view of humans at this time in his life, and human evolution. **Two MP3 files: Notebook B 169; 214.**
3. **Eureka!** Darwin's Notebook entry for 28 September 1838 is justifiably famous. Explain why this is so, and discuss Darwin's equally famous (if not more so) analogy of "a hundred thousand wedges"—what was he referring to, what evidence did he ponder, and how did he use that evidence to finally arrive at "a theory by which to work?" **Two MP3 files: Notebook D 134e; 140.**

## Written Response #8 -- Darwin Correspondence Online

### For context (and our visit with the University of Cambridge archivists!):

1. Read about the Darwin Correspondence Project:  
<https://www.darwinproject.ac.uk/letters/about-letters>
2. Watch the 7-minute film about the "lifecycle of a letter":  
<https://www.darwinproject.ac.uk/letters/lifecycle-letter-film>

### For written response assignment:

3. Read about **Hooker**: <http://www.darwinproject.ac.uk/joseph-dalton-hooker>
4. On same page, read last paragraph of letter of Darwin to Hooker 11 Jan 1844, and **listen to the audio** (start at time= 3.12) as you read: <https://soundcloud.com/darwin-correspondence/letter-14-to-jd-hooker-11-jan-1844-729-confessing-a-murdermp3?in=darwin-correspondence/sets/darwin-letters-audio>
5. Read about **Lyell**: <http://www.darwinproject.ac.uk/charles-lyell>
6. On same page, read *last 2 paragraphs* of letter of Darwin to Hooker 9 May 1856 (right side bar, hyperlinked).
7. Read letter of Darwin to Lyell 18 Jun 1858: <http://www.darwinproject.ac.uk/letter/DCP-LETT-2285.xml>
8. Read about **Gray**: <http://www.darwinproject.ac.uk/asa-gray>
9. Next, locate letter of Darwin to Gray 5 Sept 1857:  
<http://www.darwinproject.ac.uk/letter/?docId=letters/DCP-LETT-2136.xml;query=gray%20september%201857;brand=default> **and listen to the letter being read**: <https://soundcloud.com/darwin-correspondence/letter-15-to-asa-gray-5-sept-1857-2136-science?in=darwin-correspondence/sets/darwin-letters-audio>
10. Read about **Henslow**: <http://www.darwinproject.ac.uk/john-stevens-henslow>
11. On same page, read letter of Darwin to Henslow 11 Nov 1859.

Now, imagine you are a historian, excited because you have just read these private letters *from Darwin to four of his closest, most valued correspondents!* **Craft a narrative** to tell a story as told by the letters, beginning with Darwin first intimating his ideas to one of the scientists until publication of the *Origin*. Be sure to capture what you see as the most significant points of each letter, and humanize Darwin-- e.g., How does he come across to you in each letter-- what personality traits do you seem to detect? What's your evidence? How would you characterize the value he places on his correspondents? What is he worried about? What traits do you see in Darwin that would serve him well as a scientist? *Fill in your narrative with information you already know from other sources and cite those sources, but focus on the significance of the letters.*

Your narrative should be ~ 500 words.

## Written Response #11

### Darwin and Religion

Search the Darwin Correspondence Project database <http://www.darwinproject.ac.uk> to view transcriptions of the four letters read aloud at links below. Then answer the Written Response prompts and upload to Carmen. (Additional info: <http://www.darwinproject.ac.uk/commentary/religion> )

**1. Darwin to Asa Gray 22 May 1860:**

<https://soundcloud.com/darwin-correspondence/letter-2-to-asa-gray-22-may-1860-2814-cartoonsmp3?in=darwin-correspondence/sets/darwin-letters-audio>

**2. Darwin to Mary Everest Boole 14 Dec 1866:**

<https://soundcloud.com/darwin-correspondence/letter-5-to-me-boole-14-dec-1866-5307-religionmp3?in=darwin-correspondence/sets/darwin-letters-audio>

**3. The letter (13 Dec 1866) that Boole wrote to Darwin that prompted his above response:**

<http://www.darwinproject.ac.uk/letter/?docId=letters/DCP-LETT-5303.xml;query=boole;brand=default>

**4. Darwin to John Forcye 7 May 1879**

<https://soundcloud.com/darwin-correspondence/letter-9-to-john-forcye-7-may-1879-12041-religionmp3?in=darwin-correspondence/sets/darwin-letters-audio>

### ***Written Response Prompts***

1. Discuss the forces identified in Notebook M and the outside influences that changed Darwin's thinking about materialism and teleology.
2. According to Darwin, is there a material basis for belief in God? How is this connected to natural selection, if at all?
3. What was the major issue identified in Darwin's time with respect to religion and morality? How does Darwin respond to the thinking about the relationship between the two?
4. How does Darwin resolve the issue of religion and evolution? Would you say that the resolution is an example of deism or theism? Provide evidence and reasoning for your answer.