

**Core Course Assessment Plan, 2018-19**  
**Element 6: Natural Sciences**

**Please complete all sections; do not delete section information. Submit to Pilot when complete.**

**SECTION 1: GENERAL INFORMATION**

Course Dept. Prefix: ATH Course #: 2100/L

Semester when assessment will occur:  Spring  Summer  Fall Year: **2018**

Course Title: Intro to Biological Anthropology

Section Types and number of sections offered in 2018-19. Complete all that apply.

<u>3</u> Dayton face-to-face	<u>0</u> Lake face-to-face
<u>0</u> Dayton online	<u>0</u> Lake online
<u>0</u> Dayton Honors	<u>0</u> Lake Honors

Attributes: 0 Integrative Writing in Core  
0 Multicultural Competency in Core  
0 Service Learning in Core

Dept. Core Assessment Lead: Dr. Tracey Steele [tracey.steele@wright.edu](mailto:tracey.steele@wright.edu)  
Name email

List at least two assessors; this may include course instructor only if there are multiple sections and multiple instructors of the course. Note - The instructor may not assess his/her students' papers.

- [Dr. Laurel Monnig](#)
  - [Dr. Lance Greene](#)
  - [Dr. Geoff Owens](#)
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**SECTION 2: ASSESSMENT PLAN**

**It is preferable to have the assessment plan for all sections of a course. If not feasible, please complete an assessment plan for separate sections.**

Course Outcomes. \_\_\_\_\_ Check here if Outcomes have been modified.

The course must address all 5 outcomes but must assess a minimum of 1 outcome. Highlight in yellow the outcome(s) you will assess. If you have modified the outcomes, please insert here in place of standard outcomes.

1. Understand the nature of scientific inquiry;
2. Critically apply knowledge of scientific theory and methods of inquiry to evaluate information from a variety of sources;
3. Distinguish between science and technology and recognize their roles in society;

4. Demonstrate an awareness of theoretical, practical, creative and cultural dimensions of scientific inquiry; and
5. Discuss fundamental theories underlying modern science.

Assignments. Select **one** of the options below for assessment of one or more outcomes

Written assignment(s) that addresses/address outcome(s). Include outcome #, title and description for each assignment.

Outcome #: \_\_\_\_ Title:

Description of assignment:

Essay question(s). Provide the question(s) and outcome(s) below.

1. Outcome #: \_\_\_\_\_ Essay Question:

\_\_\_\_\_

2. Outcome #: \_\_\_\_\_ Essay Question:

\_\_\_\_\_

3. Outcome #: \_\_\_\_\_ Essay Question:

\_\_\_\_\_

Pilot asynchronous written discussion that addresses outcome(s). Provide the outcome # and question(s).

1. Outcome #: \_\_\_\_\_ Discussion Question:

\_\_\_\_\_

2. Outcome #: \_\_\_\_\_ Discussion Question:

\_\_\_\_\_

3. Outcome #: \_\_\_\_\_ Discussion Question:

\_\_\_\_\_

Multiple Choice or T/F Marker questions – 3 to 4 questions per outcome. List the outcome and question numbers. A rubric is not used for Marker questions. “All the above” should not be used as the correct answer more than once. **Courses that are IW or SRV/SRVI must use written assignments for those attributes.** Complete the benchmark: We expect 70% of students to answer 70% of the question(s) correctly.

**1. Outcome # 1**

- a) FALSE: Scientists use the "scientific method"- a process in which hypothesis are tested and, if confirmed, become theories. A theory then becomes a law when enough scientists reconfirm the same finding.
- b) FALSE: The purpose of science is to collect data to prove that theories are true.
- c) FALSE: Because science relies on observation of naturally occurring events, it is not possible to test events that happened in the past

**2. Outcome # 4: Demonstrate an awareness of theoretical, practical, creative and cultural dimensions of scientific inquiry**

- a) MC: Are there individual (biological) traits that can be used to define a racial group?
- Incorrect response (score=0): Yes, there are single biological traits (such as skin color or eye shape) that can be used to distinguish one racial group from another
  - Correct response (score=1): No, there is too much overlap between racial groups to use a single biological trait (like skin color or eye shape) to distinguish one racial group from another
- b) MC: Are there groups of (biological) traits that collectively can be used to define a racial group?
- Incorrect response (score=0): Yes, when several traits are combined they can be used to distinguish one racial group from another
  - Correct response (score=1): No, there is no combination of traits that can be used to distinguish one racial group from another
- c) MC: Are there more biological differences between racial groups or between individuals within a single race?
- Incorrect response (score=0): There are more biological differences between two racial groups
  - Correct response (score=1): There are more biological differences between individuals within a single race
- d) MC: Is race biologically or culturally based?
- Incorrect response (score=0): Race is based on biological differences among racial groups, as opposed to cultural perceptions of such differences
  - Correct response (score=1): Race is based on cultural perceptions of differences among racial groups, as opposed to biological differences among such groups

**3. Outcome # 5**

- a) TRUE: Evolution is a process that has happened in the past and is still happening now.
- b) FALSE: The process we call "evolution" was first introduced and explained by Charles Darwin.
- c) FALSE: Evolution is like a chain. Each group of creatures evolves into the next "link" in the chain.
- d) TRUE: The earth is billions of years old.

Collecting and submitting the student assignment(s)

\_\_\_\_\_ Will upload assignment(s) to Pilot                      \_\_\_\_\_ x \_\_\_\_\_ Will give access to assignment(s) on Pilot

Other: I will also send the percentage of correct answers for each marker question to the assessors in SU18, FA18, and SP19 for their review (as automatically collated by PILOT). They may log in to confirm these percentages if desired.

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**SECTION 3: UCRC COMMITTEE REVIEW ONLY. DO NOT delete this section.**

Item	Complete / NA / Revision Requested	Comments
Learning Outcomes for Element 6 Natural Science	Complete	
Assignments matched to Element 6 LOs	Complete	
Rubric for LOs	Complete	Have a good plan, like the benchmark.
Rubric for IW Attribute	N/A	
Assigned Approved Reviewers	Complete	

**Committee Review Completed**

Committee Chair Signature \_\_\_\_\_ Date \_\_\_\_\_

## Core Assessment Element 6 Report Template

*A separate report needs to be submitted for each assessment plan approved by the Undergraduate Core Oversight Committee (UCOC).*

*This report must be uploaded to the Pilot course called Element 6 Core Course Assessment 2018-19 (continuous year) by Tuesday, October 1, 2019. The Final Report Dropbox link can be accessed via Content > Dropbox (Plans, Reports) > Final Report Dropbox.*

**Date Report Submitted: February 25, 2020**

**Element: Core Element 6 – Natural Science**

**Academic Year: 2018-2019**

**Course and Sections Assessed: ATH 2100 (Fall 2019)**

### **Assessment Plan:**

Below is a summary of the submitted assessment plan. No changes were made to the plan, other than the date of data capture (due to the Spring strike data were not collected in Spring 2019) Materials were not requested for FA18, but could be compiled if needed.

#### Course Outcomes

The course must address all 5 outcomes but must assess a minimum of 1 outcome. Highlight in yellow the outcome(s) you will assess. If you have modified the outcomes, please insert here in place of standard outcomes.

6. Understand the nature of scientific inquiry;
7. Critically apply knowledge of scientific theory and methods of inquiry to evaluate information from a variety of sources;
8. Distinguish between science and technology and recognize their roles in society;
9. Demonstrate an awareness of theoretical, practical, creative and cultural dimensions of scientific inquiry; and
10. Discuss fundamental theories underlying modern science.

#### Assignments

We expect 70% of students to answer 70% of the question(s) correctly.

#### **4. Outcome # 1**

- a) FALSE: Scientists use the "scientific method"- a process in which hypothesis are tested and, if confirmed, become theories. A theory then becomes a law when enough scientists reconfirm the same finding.
- b) FALSE: The purpose of science is to collect data to prove that theories are true.

- c) FALSE: Because science relies on observation of naturally occurring events, it is not possible to test events that happened in the past
- 5. Outcome # 4: Demonstrate an awareness of theoretical, practical, creative and cultural dimensions of scientific inquiry**
- a) MC: Are there individual (biological) traits that can be used to define a racial group?
- Incorrect response (score=0): Yes, there are single biological traits (such as skin color or eye shape) that can be used to distinguish one racial group from another
  - Correct response (score=1): No, there is too much overlap between racial groups to use a single biological trait (like skin color or eye shape) to distinguish one racial group from another
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- Incorrect response (score=0): Race is based on biological differences among racial groups, as opposed to cultural perceptions of such differences
  - Correct response (score=1): Race is based on cultural perceptions of differences among racial groups, as opposed to biological differences among such groups
- 6. Outcome # 5**
- a) TRUE: Evolution is a process that has happened in the past and is still happening now.
- b) FALSE: The process we call "evolution" was first introduced and explained by Charles Darwin.
- c) FALSE: Evolution is like a chain. Each group of creatures evolves into the next "link" in the chain.

### Assessment Data Collection:

As described in the original assessment plan, aggregate data from a PILOT quiz ("Post-Assessment Quiz") were collected on the last day of classes. All students present that day were polled and the results are presented below.

### Assessment Results:

Of 84 students, 77 completed the marker questions (92% response rate). For the 11 marker question, 8 questions (72% of total questions) were at or well above the 70% mark. Below is the

table showing the breakdown. Individually, Question 2 for outcome 1 failed, while Questions 7 and 17 for Outcome 5 fell just below the 70% mark.

Outcome #	Question #	% Correct	% Incorrect
1	1	77%	23%
1	2	31%	69%
1	3	78%	22%
5	7	68%	32%
5	15	100%	0%
5	16	100%	0%
5	17	60%	40%
4	19	95%	5%
4	20	76%	24%
4	21	92%	8%
4	22	95%	5%

Given that at least 70% (in this case 92%) answered 70% of the questions correctly (72% of the questions reached at least 70% correctness)- we believe the course is fulfilling its stated objectives.

In assessing the individual questions for which the score fell below 70%, we offer additional areas for improvement.

First, there is some supporting data to suggest that the wording of particular questions may have confused students. For example, Question 7 for Outcome #5 asked **“True or False: The process we call "evolution" was first introduced and explained by Charles Darwin.** Another version of this question is asked within the complete “post-assessment quiz” on the last day of the term. In that version of the question students scored well above the 70% mark. Perhaps future assessments can include both versions of the question.

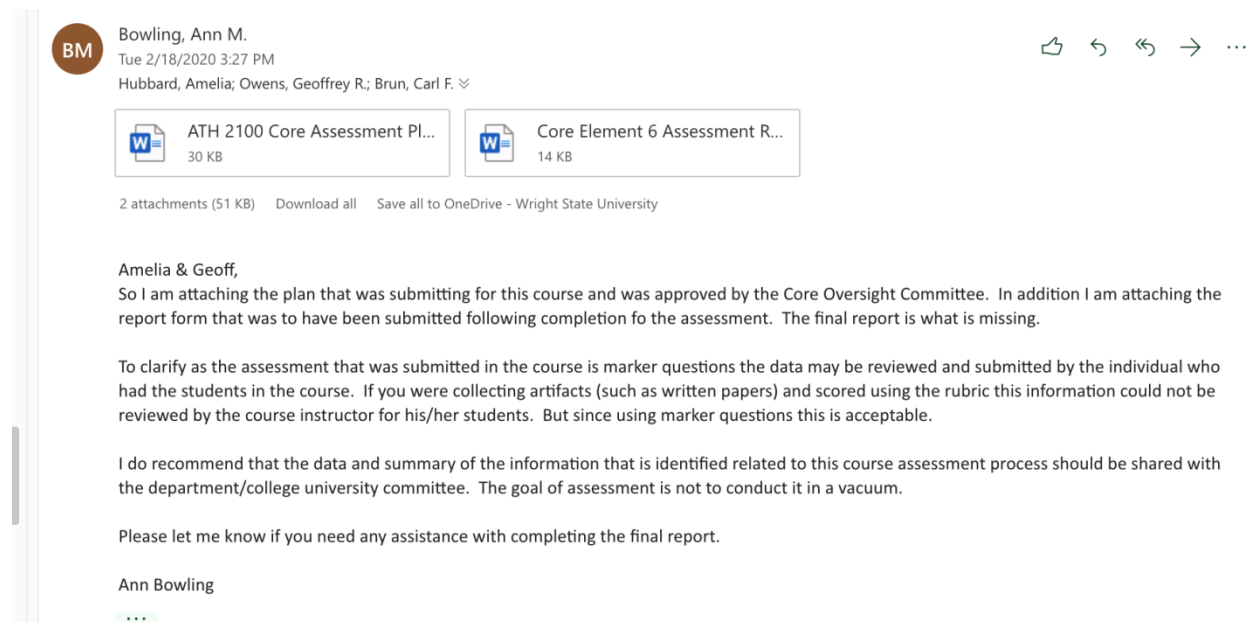
Second, the results of the other two questions that “failed” the benchmark may need additional reinforcement or revised questions. For example, Question 2 for Outcome #1 asked, **“True or False: Scientists use the "scientific method"- a process in which hypothesis are tested and, if confirmed, become theories. A theory then becomes a law when enough scientists reconfirm the same finding.”** This result is quite surprising given that several readings, out of class labs/quizzes, and in class activities ask versions of this question. It is unclear why this particular question scored so low; therefore, breaking each components into an individual question (e.g., “Scientists use a single scientific method,” “Once a hypothesis is tested and confirmed, it becomes a theory” and “A theory may become a law, when enough scientists reconfirm the same findings”). Perhaps the last component of the question, which is correct, led some students to conclude that if any part of the question was correct, the whole answer must be correct? Within the course, students often complain about these “best answer” types of questions as being “trick

questions.” In other words, students may not have failed to understand the concepts but rather how to answer the question.

Question 17 for Outcome #5 asked, “**True or False: Evolution is like a chain. Each group of creatures evolves into the next “link” in the chain.**” It is again unclear why students did not do well on this question, as it is a core theme of the course with multiple labs, in class activities, and readings that confirm one species does *not* evolve into the next. In this case perhaps a secondary question, with an alternative wording, might confirm if the question or the concept is being confused.

### Assessment Feedback:

The assessment was collected by Dr. Hubbard, per the directions provided on 2/18/2020 in the email below.



BM Bowling, Ann M.  
Tue 2/18/2020 3:27 PM  
Hubbard, Amelia; Owens, Geoffrey R.; Brun, Carl F. ☺

ATH 2100 Core Assessment Pl... 30 KB  
Core Element 6 Assessment R... 14 KB

2 attachments (51 KB) Download all Save all to OneDrive - Wright State University

Amelia & Geoff,  
So I am attaching the plan that was submitting for this course and was approved by the Core Oversight Committee. In addition I am attaching the report form that was to have been submitted following completion for the assessment. The final report is what is missing.

To clarify as the assessment that was submitted in the course is marker questions the data may be reviewed and submitted by the individual who had the students in the course. If you were collecting artifacts (such as written papers) and scored using the rubric this information could not be reviewed by the course instructor for his/her students. But since using marker questions this is acceptable.

I do recommend that the data and summary of the information that is identified related to this course assessment process should be shared with the department/college university committee. The goal of assessment is not to conduct it in a vacuum.

Please let me know if you need any assistance with completing the final report.

Ann Bowling

The same questions were shared with the other assessment committees via a report for the 14-15 academic year. A copy of this report will also be forwarded to the department chair for her records.

### Assessment Administration Feedback

I would like to see a clearer process for submission/solicitation of the results. I mistakenly relied on my department’s assessment committee chair to notify me when these reports were due. Though I completed them under my own steam in Fall 2019, they laid in limbo until I noticed a report of the Faculty Senate noting that my course had not been reviewed though I had completed this assessment in December of last year. These data are helpful to me as an instructor, but if they are to go “outside of the vacuum” as indicated in the email above, I’d like a clearer process for who/when/how to submit these assessments to each committee. Perhaps



cc'ing the instructor for the course on an email to whomever is being asked to submit the report would be helpful. As Ann notes above, I was given permission to submit the aggregate scores from the PILOT site (but was not aware to whom these scores should be sent). As part of the process it would appear that the department assessment chair, college chair, and university chair should be named in the document as part of the submission process?

**UCOC Report Review**

<b>Item</b>	<b>Complete/NA</b>	<b>Revision Requested</b>	<b>Comments</b>
Identified Outcome Assessed	<b>XX</b>		
Identified Procedure for Assessment	<b>XX</b>		
Summary of Results	<b>XX</b>		
Results Shared with Instructor, Dept Curriculum Committee, etc.	<b>XX</b>		
Plan for Improvements	<b>XX</b>		

**Committee Review Completed XXX**

Committee Chair Signature Dr. Anne M. Bowling Date 2/11/2022