

Fall 2021

## Animal Communication and Sustainability Project

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## **Inclusion Initiative - Fall 2021 Signature Assignment Information**

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Semester taught assignment: Spring 2022 (plan)

Course Title: Linguistics 123 “Sound and Communication”

Assignment Title: “Animal Communication and Sustainability Project”

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*Note:* This assignment is for the Ling 123 course. This is a GE course under Area R, and it is a large course (about 10 sections, max 25 students in each section) taught by multiple instructors.

The assignment is designed as a term project. With one or two preparatory class meetings, this two-part project (three-part including the learning) could be completed in 4-5 weeks, culminating in group presentations. The assignment would be best given toward the end of the semester as a capstone project after students have gained in-depth knowledge on mechanisms and adaptive functions of animal communication systems and the class has firmly established an environment of a learning community. In terms of the skill set, it only requires the basic research, writing, and communication skills that have been learned in lower division courses.

The entire process of the project is described in the three separate documents as follows: (1) General Instructions, (2) Review Paper, and (3) Group Presentation. As such, the text below is partitioned into three sections, each of which corresponds to one of the three documents.

## ## Document 1 ##

### Animal Communication and Sustainability Project

#### Learning outcomes

This assignment is designed to help you engage in issues of a sustainable future by developing a research-based presentation on the impact of environmental changes caused by human activities on animal communication. By completing all processes as described below, this assignment will also help you develop skills to conduct research, write a research report, collaborate with your classmates, and deliver an oral presentation with slides.

#### Description

Communication plays a critical role for animal's survival and reproduction (Gillam, 2011). However, environmental distraction and climate change caused by human activities have a detrimental impact on animal communication (Wilson, et al., 2020), thereby endangering the species' sustainability. In this assignment, you will work with two other classmates to explore topics such as (1) how communication fulfills adaptive functions for animals, (2) what types of signal modalities (i.e., types of signals) are used in animal communication, (3) how environmental changes or pollution caused by human activities might affect their communication, and (4) what humans could do to reduce and or undo these distractions to help sustain wildlife. Your group will collect data and develop a short presentation (about 10-12 min.) using either Powerpoint or Google slides. To earn full credit, your group must follow all steps described in "Steps" below.

#### Steps

##### Step 1: Learning and Researching

1. Preparatory Learning: Study the following materials in Canvas and engage in in-class discussions to confirm your understanding of the key concepts.
  - a. Article "[An introduction to animal communication](#)" by Gillam.
  - b. Video "[The dangers of a noisy ocean -- and how we can quiet it down](#)" by Jones.
  - c. Article "[Climate change could alter undersea chemical communication](#)" by Wilke.

*\*Note:* We read the first article by Gillam in Week 1. Since the class has focused on vocal communication in vertebrate animals, we will revisit this article to broaden our perspective to all types of communication used in any animal species.
2. Planning: Based on the preparatory learning, where you have reviewed/learned several examples of animal communication behaviors as well as examples of environmental destruction and its impact on animal communication, perform quick online research and brainstorm in your group to find another **specific pollution or environmental factor** that affects a **particular communication behavior/signal of a particular animal species** that your group will pursue as a topic of further research.
3. Data collection: collect scientific information through research. (Tip: split the tasks to gather sufficient information about (1) the species, (2) one specific communication signals and its adaptive function (e.g., mating calls, alarm calls), and (3) data that shows the impact of the human-caused factor on the communication signal/behavior described in (2).

## Step 2: Reporting Research in Writing - graded individual assignment

1. Write a short review paper (400-500 words) based on one source, where you will present key information found from the source and its significance. See a separate handout “Review Paper” for instructions and a grading rubric.

## Step 3: Group Presentation - graded group assignment

1. Discuss in your group and select essential findings on the three research questions: species, their communication, and negative impact of environmental change caused by humans. Also discuss what humans could do to create a sustainable environment in the future for these species.
2. Create a 10-12 min. presentation with Powerpoint or Google slides. See a separate handout “Group Presentation” for instructions and a grading rubric.
3. Rehearse a presentation as a group (Tip: consider generating a Zoom link for a rehearsal.) 8. In-class presentation with a Q-A session.

## Some suggestions for your topic

- Ocean noise pollution (e.g., ship noise, industrial noise, etc.) on communication of marine mammals (e.g., whales, dolphins) or other marine animals (e.g., fish and larvae).
- Impact of urban noise on song birds, frogs, or other animals that use vocal signals.
- Impact of water pollution on aquatic animals (in ocean, lakes, or ponds) or amphibians.
- Impact of air pollutants on land animals and insects.
- Impact of any other types of environmental destruction or climate change on a particular animal species.

## Suggested types of sources

For your research, try to find credible sources geared toward an educated general audience such as information pieces created by scientists or in collaboration with scientists for the purpose of informing and educating the general public. Avoid dense discipline-specific journal articles unless you have in-depth knowledge of the field. Suggested sources include:

- Information piece in science magazines: e.g., Nature Magazine, Discover, National Geographic, The Smithsonian.
- Educational videos: e.g., Discovery Education, National Geographic Education
- Educational YouTube channels: e.g., Academic Earth, PBS LearningMedia, Ted-Ed
- Informative live events: e.g., public events hosted by College of Humanities & the Arts. See a list of [Current Events](#).

## References

- Gillam, E. (2012). An introduction to animal communication. *Nature Education Knowledge*. 3(10), 70.
- Jones, N. (2020, April). The dangers of a noisy ocean - and how we can quiet it down [Video]. TED Conferences. <https://www.youtube.com/watch?v=sNQfoYm3WI0>
- Wilke, C. (2021, September 19). *Climate change could alter undersea chemical communication* C&EN: Chemical & Engineering News. <https://cen.acs.org/biological-chemistry/chemical-communication/Climate-change-alter-undersea>

[a-chemical/99/i34](#)

Wilson, M.W., Ridlon, A.D., Gaynor, K.M., Gaines, S.D., Stier, A.C. and Halpern, B.S. (2020), Ecological impacts of human-induced animal behaviour change. *Ecology Letters*, 23, 1522-1536. <https://doi.org/10.1111/ele.13571>

## ## Document 2 ##

### Part 1: Review Paper (Max 5 points)

#### Purpose

In this second part of the project, you will write a short report of your research in an essay format. In doing so, you will practice logical organization, academic writing, and accurate citation.

#### Task

Select any one of the sources you found for the project. After reading the article (or viewing the video or attending the live event), write a 400-500 word report that includes (1) general summary of the source, (2) key information with descriptive details, and (3) its significance.

#### Organization

How to organize your essay is up to you, but make sure that it has logical and purposeful organization. Below is one example of a three-paragraph report.

- The first paragraph introduces the article/video/event briefly, and presents the overall summary in about 50-100 words.
- The second paragraph presents one or two specific ideas from the source that resonated with you most. Be sure to include sufficient illustrative details to allow your readers to fully understand the information. This part should be written in about 200 words.
- The last paragraph discusses the significance of this information in the context of your group's presentation. For example, you might discuss why this information is important to your group and/or what implication could be drawn from the findings. One critical implication your group might consider is: what would be the consequence of continued human impact on the environment and animal populations. Then end your paper with a brief take-home message.

#### Reference

Provide a citation to the source material at the end of the essay in MLA or APA format. Even though only one source is used, the header would still use the plural form (i.e., "Works Cited" for MLA and "References" for APA style).

#### Format

Use a 12-point font, double-spaced and 1-inch margins on all sides. Include your name, course, and date at the top of the document and be sure to add a descriptive title to the essay.

### Grading rubric (Max 5 points)

Each item is worth 1 point and will be evaluated at the 3-points scale:

(e.g., 1.0 = Full Marks; 0.7 = Meets Expectations; 0 = Missing/Does Not Meet Expectations)

Category		Max point
Elements	<ul style="list-style-type: none"><li>● Succinct yet clear general summary that conveys the gist of the source.</li><li>● One or two main ideas discussed with sufficient descriptive details.</li><li>● Thoughtful discussion of the significance of or inference from the information.</li></ul>	3
Writing	<ul style="list-style-type: none"><li>● Text shows good control of <b>diction</b>, <b>grammar</b>, and <b>mechanics</b>. Errors do not obstruct the reader's understanding.</li><li>● The source is adequately introduced in the first paragraph and appropriately formatted full bibliographic information is given at the end of the paper.</li></ul>	2

## ## Document 3 ##

### Part 2: Group Presentation (Max 10 points)

#### Purpose

In this second part of the project, your group will deliver an oral presentation of your findings and analysis to the class. In doing so, you will practice creating effective slides using [Universal Design for Learning \(UDL\) principles](#) and oral communication skills.

#### Task

Create a 10-12 min. presentation using either Powerpoint or Google slides. The presentation should include the following information:

1. Your topic (animal species) and background information about the animal (e.g. habitat, general characteristics, and communication signals)
2. How human activities are negatively impacting the animal's habitat and communication behaviors and/or survival
3. (Optional additional information: How the animal's communication signals or behavior is adapting to cope with these challenges)
4. Your discussions and opinions on how a sustainable future can be created for the animal.
5. Your overall conclusion
6. References in MLA/APA format
7. A slide at the end listing each author's contribution to the presentation

Each student is responsible for making 3-4 slides for the presentation and will write and submit an oral script of their presented part (350-400 words per person for a 3-min. speech). Include the individual author's name on each slide. You should plan to rehearse the presentation as a group. The presentation will be delivered in class and will be followed by a Q-A session. See the tips below on how to make your presentation accessible in line with [UDL principles](#).

#### Tips on creating effective slides for presentation

1. Simplify and limit the number of words on each screen. Use key phrases and include only essential information. Avoid long sentences on slides.
2. Include no more than 6 lines on a slide
3. Use bullet points; less is more when it comes to text on slides
4. Most text should be between 28 and 32 point size, no smaller than 24 point size.
5. Use simple sans serif font (Arial, Comic Sans, etc.) that are easy to read.
6. Use contrasting colors for text and background. Dark text on a light background is best.
7. Avoid flickering, flashing, and animated text, which is distracting for the audience.
8. Use good quality images, graphs, diagrams, or figures that reinforce and complement your message. If you use figures make sure to close caption them.
9. Limit the number of slides to 12 (excluding references and author contribution slide). A good rule of thumb is one slide per minute.

### Grading Criteria for Group Presentation (Max 10 points)

Each item is worth 1 point and will be evaluated at the 3-points scale:

(e.g., 1.0 = Full Marks; 0.7 = Meets Expectations; 0 = Missing/Does Not Meet Expectations)

Category		Max point
Group points	<ul style="list-style-type: none"><li>● Coherence – Ideas flow smoothly and connect logically</li><li>● Q-A -- Questions are adequately answered. All members take turns answering questions.</li><li>● Collaboration – Everyone worked equally on the presentation</li></ul>	3
Individual points	<ul style="list-style-type: none"><li>● Sufficiency of contents (350-400 words script, 3-4 slides for 3 min. presentation covering all the components of the topic</li><li>● Focus, Coherence and Clarity in explanation and/or description (explain ideas with illustrative examples, not a list of jargons.)</li><li>● Language (when presenting ideas from specific sources, students should paraphrase the ideas in their own words)</li><li>● Delivery (talking directly to the audience, not reading from slides)</li><li>● Slides (font size, amount of text, effective figures, accessibility).</li></ul>	5
Participation	<ul style="list-style-type: none"><li>● Rehearsal attended</li><li>● Thoughtful feedback to an assigned group (This task will be assigned on the presentation day.)</li></ul>	2