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### Appendix 1: Timeline of One Health Unit

| Week of Unit                | Class Topic and Assignment                                      |
|----------------------------|-----------------------------------------------------------------|
| Week 1                     | Introduction to One Health                                      |
|                            | Three Possible Topics Assignment                                |
|                            | Final Topic with Three References Assignment                   |
| Week 2                     | Annotated Bibliography Assignment                               |
|                            | Zoonotic Diseases and Video Assignment                         |
|                            | Outline and Partial Rough Draft Assignment                     |
| Week 3 – End of finals week| One Health Final Project Due                                    |
Appendix 2: Formative Assignments

The assignments described here are also available as a Canvas module upon request.

Introduction to One Health

Learning Outcomes and Associated ASM Guidelines:

- ASM Guidelines: 3, 20, 22, 23, 27

At the end of today's activities, you will be able to

- Describe what the One Health initiative is and why it is important to consider in the context of this course.
- Determine an appropriate topic for your One Health final project.

Class Preparation Activities:

- Explore the [CDC One Health website](https://www.cdc.gov/onehealth/).
- Read about the different topics within the initiative. As you are reading through the CDC material, decide what topic you would like to explore further for your upcoming One Health project that is due on the day of the final in this course.
- Watch the following videos:
  - *The Ties that Bind: One Health* - Sharon Deem
  - *Every New Pandemic Starts as a Mystery* - David Quammen

After reading and watching the videos, complete the assignment: Three Possible Topics.

After you have narrowed down your discussion with your group, complete the assignment: Final Topic with Three References.

Assignment: Three Possible Topics

After reading and watching the videos, and possibly an internet search, list and describe three topics that you may consider exploring with your One Health final project.

Assignment: Final Topic with Three References

After discussion with your group members and reading instructor feedback from Three Possible Topics assignment, decide on your topic for your project. Sign up for your topic. If another student has already chosen the topic, then you must choose a different topic.
Assignment: Annotated Bibliography

After your topic has been approved by your instructor, construct an annotated bibliography with at least ten peer-reviewed sources. Make sure your citations conform to the APA citation guidelines.

Zoonotic Diseases

Learning Outcomes and Associated ASM Guidelines:

- ASM Guidelines: 11, 12, 13, 17, 20, 21, 22, 23, 24, 27

At the end of today's class activities, you will be able to

- Define "spillover event."
- Describe what factors cause spillover events to occur.
- Evaluate a scenario in which spillover occurred and determine the source of the spillover.

Class Activities:

- Watch the PBS special, *Spillover: Zika, Ebola & Beyond*. From the PBS website: "This PBS special was originally broadcast in August 2016 during the outbreak of Zika virus. It is being rebroadcast now in light of the current novel coronavirus/COVID 19 crisis. The public health strategies depicted in this film apply to managing the current pandemic. Throughout the last few decades, diseases that spill over from animals to humans have been on the rise. What’s behind their increase, and can we do anything to combat these dangerous foes? Join scientists as they investigate the rise of spillover viruses like Zika, Ebola and Coronavirus, and learn what science can do to anticipate and prevent epidemics around the world."

- As you watch the video, which will take approximately one hour, take notes recording new information that you learned. As you are viewing the PBS special, consider how what you are watching compares to your One Health project.

After watching the video, complete One Health Topic Connection with PBS video.

Assignment: One Health Topic Connection with PBS Video

Reflect on the PBS video that you watched. How do these topics relate to your specific topic for your One Health project?

Assignment: Outline and Partial Rough Draft

Construct an outline of your paper. Be as detailed as possible. After you have finished your outline, begin composing a rough draft. Submit what you have at the end of class.
Appendix 3: One Health Final Project Instructions

The instructions described here and accompanying rubric are available as a Canvas module upon request.

**Purpose.** One Health is a global initiative that recognizes the interdependence of human, animal and environmental health, and that a holistic approach to the well-being of all will lead to improved health outcomes and enhanced resilience. Your project will focus on specific microbiological situations that have occurred as a result of human disruption of the environment or that are predicted to occur. The purpose of this assignment is to serve as a cumulative microbiology project where you are able to assimilate the concepts and ideas you have learned in this course. Projects will be submitted in the form of a paper.

**Skills.** The purpose of this assignment is to help you practice the following skills that are essential to your success in this course, in this field, in professional life beyond school, and in your life as a resident of this fragile planet. As a result of this project, you will be able to

- Demonstrate your understanding of basic microbiology knowledge and terminology.
- Apply basic microbiology knowledge/tools to problem-solving in the context of the One Health initiatives.
- Analyze sources for currency, relevance, authority, accuracy, and purpose.
- Synthesize information found in sources to educate and challenge the audience of the final project.
- Judge, evaluate, and select best solutions to the microbiological problem based on evidence from peer-reviewed sources.
- Communicate findings in an effective manner through written and oral communication through a variety of formats.

**Knowledge.** This assignment will also help you to become familiar with the following important content knowledge in this discipline:

- Natural history of microorganisms
- Epidemiology
- Spillover
- Vaccination - some projects will require this, but not all
- Interrelatedness of the microbiology to real-world problems.
- One Health initiative

**Tasks.** In order to be successful in this assignment, follow the steps listed below:

1. Select a topic related to One Health that is microbiological in its scope.
2. Construct an annotated bibliography with at least ten peer-reviewed sources. Make sure your citations conform to the APA citation guidelines.
3. Construct an outline of the project.
4. Discuss your project with your instructor and receive feedback.
5. Compose a rough draft of your project. Share this paper with several of your classmates during class to gain feedback from them.
6. Edit, edit, edit your project.
7. Prepare a final draft of your paper and submit it. This paper will be at least eight pages in length, double-spaced, 12-point font, not including references. Some topics will require more than eight pages to cover the topic adequately.
8. Present your project to a group in 10-15 minutes during the final exam time.

Criteria for Success:

1. **Microbiological in scope.** Any microorganism found in any domain or any virus is allowed as a topic of the project.
2. **Natural history of the microbe.** Clearly and completely explain what is known about this microbe, what kind of microbe it is, where it normally found, etc.
3. **One Health.** The project must address all of the ways that the topic relates to the initiatives of One Health.
4. **Problem.** Explain the problem from several perspectives, not just the biological perspective.
5. **Solutions.** Discuss proposed solutions with critiques and advantages.
6. **Mechanics of the project.** Exhibit excellent command of standard English that skillfully communicates meaning to the audience with clarity and fluency, and is virtually error-free.
7. **Ethical and appropriate use of sources.** There must be a minimum of 10 peer-reviewed, relevant references. These sources must be from legitimate science journals and must have an impact factor. Here is a list of journals with impact factors. The final reference list should not be annotated. Correctly implement all four of the following strategies:
   1. Select critical sources.
   2. Adhere to the APA citation and reference style.
   3. Paraphrase or summarize in ways that are true to the original context.
   4. Distinguish between common knowledge and ideas requiring attribution. Practice ethical and legal restrictions on the use of published, confidential, and/or proprietary information.
8. **Presentation.** Clearly communicate the main concepts of the project in a 10-15-minute oral presentation. Use visual aids that are helpful and engaging for the audience. Be prepared to answer questions.
Appendix 4: Grading Components for Microbiology Course

| Component                                                      | Percentage |
|----------------------------------------------------------------|------------|
| Microbiologist of the Week presentations                      | 7%         |
| Formative assignments                                         | 8%         |
| Daily work and engagement                                     | 10%        |
| Summative quizzes (6)                                          | 60%        |
| Research boxes and presentations                              | 5%         |
| One Health final project and presentation                     | 10%        |
| **Total**                                                      | **100%**   |