**Detailed description of rubric scores for synthesis product and system map categories**

***Inquiry and synthesis competencies***

1. Identifies and locates what was needed to know about the focal question (i.e. poultry farms) from disparate fields

2. Evaluates and integrates existing information from disparate arguments synthesis evidence (critique).

Poor (0-4):

* Issue/problem to be considered critically is stated without clarification or description.
* Information is taken from source(s) without any interpretation and/or evaluation.

Fair (5-6):

* Information is taken from source(s) with some interpretation and/or evaluation, but not enough to develop a coherent analysis or synthesis.
* Identifies several relevant contexts when presenting a position. May be more aware of others' assumptions than one's own (or vice versa).

Good (7-8):

* Issue/problem to be considered critically is stated, described, and clarified so that understanding is not seriously impeded by omissions.

Excellent (9-10):

* Clearly stated and comprehensively described the issue being addressed and synthesized data using perspectives from both social science and ecology, and delivered all relevant information necessary for full analysis and comprehension of the issue at stake.

***Epistemological competence***

3. Recognizes different assumptions and epistemological stances

Critical and creative thinking

4. Applies concepts, framework, models from disparate fields

Poor (0-4):

* Viewpoints of experts are taken as fact, without questioning their position
* Does not consistently apply concepts, framework or models from more than one field
* Makes simplistic assumptions and takes uncritical stances on issues
* Shows an emerging awareness of present assumptions (sometimes labels assertions as assumptions).

Fair (5-6):

* Issue and/or problem to be considered critically is stated but description leaves some terms undefined, ambiguities unexplored, boundaries undetermined, and/or backgrounds unknown.

Good (7-8):

* Identifies own and others' assumptions and several relevant contexts when presenting a position.
* Positions and/or viewpoints of experts are subject to questioning.

Excellent (9-10):

* Viewpoints of experts are questioned thoroughly. Thoroughly (systematically and methodically) analyzes own and others' assumptions and carefully evaluates the relevance of contexts when presenting a position.

***Communication literacy***

5. Differences in epistemology were appreciated:

(a) with people within discipline

(b) with other people in other disciplines (general audience)

Poor (0-4):

* Begins to identify some contexts when presenting a position. Specific position (perspective, thesis/hypothesis) is stated, but is simplistic and obvious.

Fair (5-6):

* Viewpoints of experts are taken as mostly fact, with little questioning of their position. Questions some assumptions.
* Identifies several relevant contexts when presenting a position. May be more aware of others' assumptions than one's own (or vice versa).

Good (7-8):

* Information is taken from source(s) with enough interpretation and/or evaluation to develop a coherent analysis or synthesis.

Excellent (9-10):

* Information is taken from source(s) with enough interpretation and/or evaluation to develop a comprehensive analysis or synthesis.

***Normative Thinking***

6. Discusses the values, goals, hopes and fears of the people who will be impacted by your project (in a positive and negative way)

Poor (0-4):

* Seems unaware of the the values, goals, hopes and fears of people who are impacted by the project either positively or negatively

Fair (5-6):

* Aware of specific position (perspective, thesis/hypothesis); acknowledges different sides of an issue.

Good (7-8):

* Identifies specific position (perspective, thesis/hypothesis); takes into account the complexities of an issue.
* Others' points of view are acknowledged within position (perspective, thesis/hypothesis).

Excellent (9-10):

* Identifies specific position (perspective, thesis/hypothesis); is imaginative, taking into account the complexities of an issue.
* Others' points of view are synthesized within position (perspective, thesis/hypothesis).

***Actionable Science***

7. Provides rationale for how data is used to develop actionable science

8. Shows, frames and shares the science to influence behavior, policy, and management

Poor (0-4):

* Begins to identify some contexts when presenting a position. Specific position (perspective, thesis/hypothesis) is stated, but is simplistic and obvious.
* Conclusion is inconsistently tied to some of the information discussed; related outcomes (consequences and implications) are oversimplified.

Fair (5-6):

* Conclusion is logically tied to information (because information is chosen to fit the desired conclusion)
* Some related outcomes (consequences and implications) are identified clearly

Good (7-8):

* Conclusion is logically tied to a range of information, including opposing viewpoints; related outcomes (consequences and implications) are identified clearly.

Excellent (9-10):

* Conclusions and related outcomes (consequences and implications) are logical and reflect student’s informed evaluation and ability to place evidence and perspectives discussed in priority order.
* Limits of position (perspective, thesis/hypothesis) are acknowledged.

***Accuracy***

9. All places, names and events are accurate and used in the correct context

Poor (0-4):

* Most places, events and names are inaccurate or incorrectly used.

Fair (5-6):

* Some places, events and names are accurate and correctly used.

Good (7-8):

* Most places, events and names are accurate and correctly used.

Excellent (9-10):

* All places, events and names are accurate and used in the correct context

***Documentation***

(10) Written documentation provided, all sources cited, and use of high level vocabulary

Poor (0-4):

* Little or no written documentation or source citation, and scientific and social science vocabulary is not properly utilized.

Fair (5-6):

* At least 60% of assertions are backed with written/video documentation and source citation, and some appropriate usage of scientific and social science vocabulary and terms.

Good (7-8):

* Most statements of fact are backed with documentation from reliable sources which are properly cited and appropriate vocabulary is used throughout.

Excellent (9-10):

* Consistently uses appropriate scientific and social science vocabulary and documents all claims from acceptable sources.