Program Assessment Report
DBCALFS ANSC BS Program
University of Arkansas
Academic Year 2020-2021

1. **Animal Science Department, B111 AFLS, 575-3745**

2. **Department Mission:**

   The Department of Animal Science shall be a leading authority of animal agriculture by means of innovative research, teaching and extension programs for all Arkansans and the world.

3. **Program Goals:** The Department of Animal Science will 1) perform research from discovery to application that benefits the production efficiency, animal health/well-being, food safety/security, and sustainability of animal agriculture, **2) recruit, educate, and prepare for the future, a new generation of citizens that will provide expertise in food production, animal health/well-being, as well as human health and nutrition,** and 3) provide research-based livestock and forage information through non-formal educational methods for the sustainability and management of agricultural production systems to improve Arkansans quality of life.

4. **Student Learning Outcome #1**
   Students will demonstrate an understanding of scientific knowledge and gain a basic foundation in the general animal sciences, including physiology, genetics, nutrition, muscle foods, as well as demonstrate production management skills.

   A. Assessment Measure 1 – Direct
      - A pre-post assessment was conducted for incoming freshman of 2020 and seniors graduating in the spring of 2021.
      - An assessment tool was developed by the student assessment committee from questions that were created by the ANSC faculty (used for the 1st time in 2016, modified in spring 2018). The assessment tool was comprised of 58 questions.
      - Twenty-eight survey questions were created for graduating seniors and 17 survey questions were created for incoming freshmen in 2016 and both modified in 2019.
      - The 58-question assessment instrument and the 17-question freshman survey was administered to students in ANSC 1033 Introduction to Animal Sciences (predominately freshmen ANSC majors, but not exclusively) on blackboard in the Fall 2020. Seventy-six students completed the 58-question assessment tool and the 17-question freshman survey.
      - The 58-question assessment instrument and the 28-question senior survey were transitioned from hard copy to an online version utilizing Microsoft Forms in 2021. In March of 2021, outgoing seniors were invited via e-mail invitation to participate in the Senior Assessment Exam and the Senior Survey. Those seniors who did not complete the Senior Assessment Exam and Senior Survey were reminded again in April 2021 to participate. Of the 46 names of Spring 2021 graduating students in ANSC provided by the Dean's office, 18 (39%) completed the Senior Assessment Exam and Senior Survey.

Of respondents, 3 self-identified as male; 15 self-identified as female, 16 self-identified as Caucasian, 1 self-identified as Hispanic/ Latino and 1 self-identified as Other. Ten students reported that they were considered 'in-state' and 8 reported they were 'out-of-state' for tuition purposes.

The 2020-2021 scores and change in percentage correct between the pre (Freshman) and post (Senior) assessments are reported below:

Freshman, % correct (n = 75)	Senior, % correct (n = 18)	Percentage Unit Change in % correct
42.5 2 students (3%) had >70% correct	76.0 13 students (72%) Had > 70% correct	+33.5%

- This is an improvement of 33.5% percentage units from the freshmen to the seniors.
- The target score for the Senior Assessment Exam, as determined by the departmental committee was there would be 70% of graduating seniors who scored 'average' or above. If average is set at 70% on the exam then 72% of the seniors who took the assessment met this goal. Thus, this reaches the acceptable level as determined by the department.
- In the chart below, 2020 aggregate scores for 2020 graduating seniors are compared to aggregate scores for 2021 graduating seniors.

2020 Senior, % correct (n = 40)	2021 Senior, % correct (n=18)	Percentage Unit Change in % correct for graduating Seniors
69.31 20 students (50%) had >70% correct	76.0 13 students (72%) Had > 70% correct	6.69

- The 58-question Senior Assessment Exam was further broken down into areas of competency deemed important by the Departmental Assessment Committee.

Area of Competence	Number of questions	Average Percent correct (n=18)
Physiology	13	73%
Genetics	11	74%
Nutrition	12	79%
Muscle Products	10	71%
Production Management	12	76%

- Across all concentrations within the Department of ANSC, aggregate scores for graduating seniors who responded to the Senior assessment Exam averaged above 70%
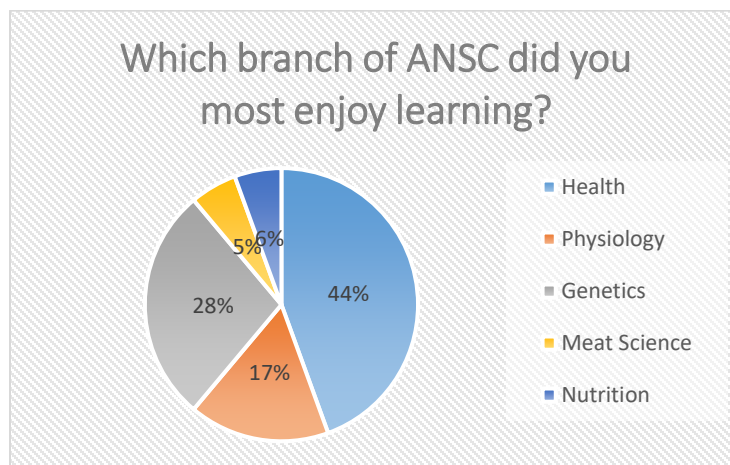
| ANSC concentration	No. students (n=18)	Average Percentage Correct	Range
Equine	4	80%	70% - 88%
General ANSC	9	73%	47% - 93%
Pre-professional	5	80%	49% - 93%
All ANSC Concentrations	**18**	**76%**	**47% - 93%**

In summary:

- Only 2 students in the freshmen course scored greater than 70% correct; however, 72% of the seniors scored greater than 70% correct). It would appear that the department is improving the understanding of scientific knowledge in the Animal Sciences.
- The rigor of the assessment and the appropriate metric for 'acceptable' requires continued discussion within the department. While 2021 was a non-traditional year due to COVID and there was a limited number of graduating seniors who completed the assessment, the results obtained from the 2021 Senior Assessment Exam appear consistent with the results obtained in 2020. Therefore, it appears that the assessment tool we are using is providing consistent results.
- There were 4 questions on the assessment instrument that were incorrectly answered at a frequency of >50% by the seniors. These questions were distributed throughout the disciplines (1 physiology, 1 meat science and 2 genetics); they were not concentrated within any single discipline.

B. Assessment Measure 2 - Indirect
- A 28-question Senior Survey was developed by the assessment committee. This survey was administered to outgoing seniors concurrently with the Senior Assessment Exam described above.
- An invitation to have an Exit Interview with the Department Head was also extended to all seniors scheduled to graduate in the Spring of 2021.
- Of the 46 names of graduating seniors in ANSC provided by the Dean's office, 18 (39%) completed the Senior Assessment Exam and the Senior Survey.
- Senior Survey results and demographics follow:
  - 9 of the respondents (50%) reported they had an urban background.
  - When asked what type of animals' respondents hoped to work with after graduation, 4 (22%) answered companion animals, 5 (28%) answered livestock, 6 (33%) answered mixed, 2 (11%) answered wildlife and 1 (5%) answered other.
- Due to COVID, many courses were taught online during the fall of 2020 and spring of 2021. One concern of faculty was student satisfaction with departmental preparedness of graduating seniors and satisfaction of studying various content areas in ANSC. Results reported below:

Has the ANSC Dept done a good job of increasing your awareness of career opportunities in the field of ANSCTitle

- Yes
- No
- Not sure

Which branch of ANSC did you most enjoy learning?

- Health
- Physiology
- Genetics
- Meat Science
- Nutrition

- Because 2020-2021 was an atypical year, questions examining financial concerns, stress, and willingness to volunteer are reported from the Senior Survey. Information gathered in these areas will be compared to information collected in future surveys to assess the impact this atypical year had on students.
- Respondents were asked if it was necessary for them to work while they were at the university.
  - 5 (28%) reported that it was unnecessary
  - 6 (33%) reported that it was unnecessary to work but they liked the extra spending money
  - 7 (39%) reported that it was necessary for them to have a job while they attended the university
  - 13 (72%) of respondents reported that doing well in their courses causes them the most stress, while 3 (16%) reported that having enough money to pay bills causes them the most stress. The remaining 2 respondents (11%) reported that they are not stressed about paying bills or doing well in classes.

- In an effort to understand how many hours/ week respondents worked and volunteered, the following information was gathered:
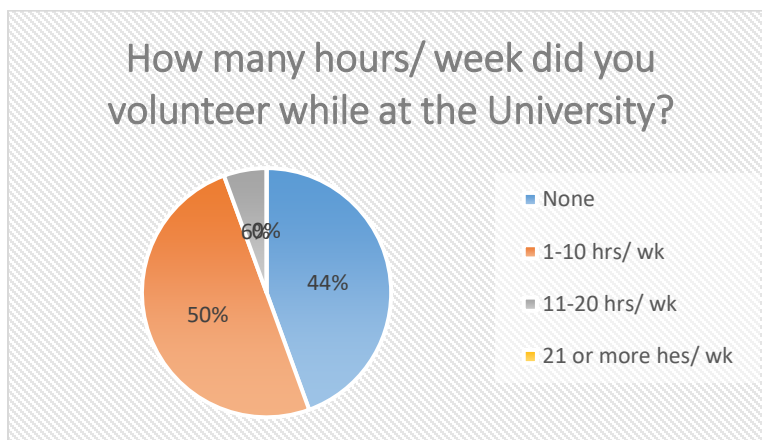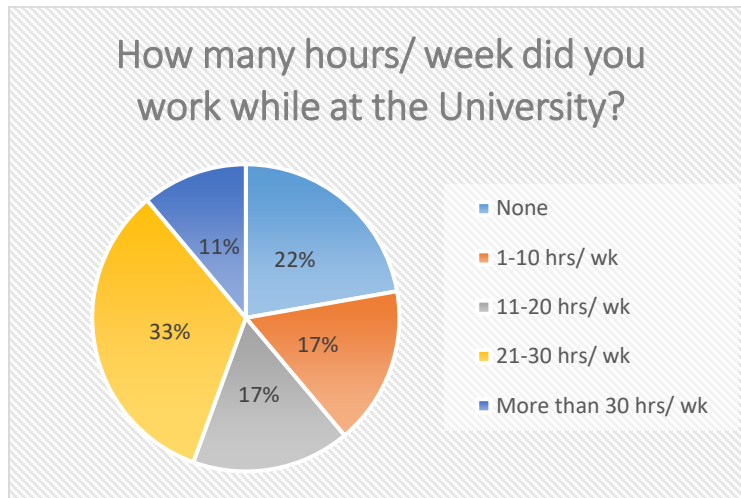
- Finally, upon returning the assessment and survey instruments students were given an invitation to set up an appointment with Dr. Looper, the Department Head, for an exit interview.
  - o The Department Head of Animal Science conducted exit interviews with graduating seniors. This is a summary of eight (of 46 students that applied for graduation through the Dean's office; 17% of graduating seniors are represented in the comments below) vis-à-vis interviews.
  - o Students 'found' the UA and Animal Science via family members attending the UA, visited and enjoyed natural beauty of NWA, or transferred in from other degree programs. Virtually all graduating seniors were complimentary of the quality of advising and instruction in the Department of Animal Science, and the availability of faculty and one-on-one care for students. They expressed that faculty and staff were very personable even during the pandemic.
  - o The interviews showed that most students approved of overall quality of instruction, curricula design, staff interactions, and student satisfaction. Co-

instruction of courses was mentioned by a few of the students and was not considered ideal; better communication between instructors was suggested.

o Students still appreciate courses and activities where they get 'hands on' experience with livestock or in the laboratory. Some 'favorite' courses mentioned were: Diseases (challenging), Animal Behavior, Equine-Assisted Activities and Therapy, and Intro to Horsemanship. Some difficult and/or 'not favorite' courses included Reproductive Physiology and Companion Animal Nutrition (specifically the co-teaching model in this course was not appreciated). Specific activities mentioned included: Livestock Judging Team, Ranch Horse Team, and Honors/Undergraduate Research Projects.

o Two students I visited with took advantage of the study abroad/international experiences. These were very complimentary of the structured program and would recommend to other students. Students main reason, besides pandemic shuttering travel, for not getting involved in the study abroad courses cited expense and time commitment as major drawbacks for not being involved.

o Students interviewed had a variety of employment options including landscaping company (out-of-state), dog training facility (out-of-state), interviewing with Tyson Foods, graduate school (here and out-of-state), or planned to applied to professional schools (e.g., veterinarian medicine, physical therapy).

5. **Student Learning Outcome #2:**
   Students will possess problem solving skills.

   A. Assessment Measure 3 – Direct
      - Rubric for **problem solving** skills (a scale of 1 to 4, with 1 = Benchmark and 4 = Capstone) was developed and distributed to appropriate course instructors. This Problem-Solving rubric is within the Written and Oral Presentation rubrics (attached to report).
      - Rubric was used to assess graduating seniors in ANSC senior level courses.
      - Results: Scores for this rubric were returned by 1 faculty (for 1 course).

Course	Number of Seniors	Mean Score	% students receiving a score of:			
			4	3	2	1
ANSC 4272	8	3.38	38%	63%	0%	0%
Total	**8**	**3.38**	**38%**	**63%**	**0%**	**0%**

   - **In summary:**
     o The target for the Department was that 70% of graduating seniors would score an 'average' or above. In 2021, 100% of the students scored average or above and thus the department met this goal.

6. **Student Learning Outcome #3:**
   Students will possess critical thinking skills and objectively make decisions about contemporary issues based upon scientific facts rather than emotion.

   B. Assessment Measure 4 – Direct
      - A rubric for **critical thinking** skills (a scale of 1 to 4, with 1 = Benchmark and 4 =

Capstone) was developed and distributed to appropriate course instructors. This critical thinking rubric is within the Written and Oral Presentation rubrics (attached to report).
- Rubric was used to assess graduating seniors in ANSC senior level courses.
- Results: Scores for this rubric were returned by 3 faculty (for 3 courses).

Course	Number of Seniors	Mean Score	% students receiving a score of:			
			4	3	2	1
ANSC 4173	6	3.0	33%	33%	33%	0%
ANSC 4272	8	3.25	25%	75%	0%	0%
ANSC 4252	8	3.125	12.5%	88%	0%	0%
Total	**22**	**3.14**	**23%**	**68%**	**9%**	**0%**

- **In summary:**
  - The target for the Department was that 70% of graduating seniors would score an average or above. In 2021, 91% of the students assessed with the rubric scored 3 or above, therefore the departmental goal was met.

7. **Student Learning Outcome #4.**
Students will demonstrate basic oral (Outcome 4a) and written (Outcome 4b) communication skills and demonstrate the ability to write and present information in a professional manner.

A. Assessment Measure 5 - Direct
- A rubric has been created to assess **oral communication** skills. It contains 6 performance areas with a 1 to 4 scale within each of those areas (attached to report).
- Rubric was used to assess graduating seniors in ANSC senior level courses.
- Results: Scores for this rubric were returned by 3 faculty (for 3 courses).

Course	Number of Seniors	Mean Score	% students receiving a score of:			
			4	3	2	1
ANSC 4273	6	3.50	33%	50%	16%	0%
ANSC 4272	8	3.43	13%	87%	0%	0%
ANSC 4252	8	3.50	50%	50%	0%	0%
Total	**22**	**3.47**	**32%**	**64%**	**4%**	**0%**

- **In summary:**
  - The target for the Department was that 70% of graduating seniors would score an 'average' or above. In 2021, 96% of the students assessed with the rubric thus met this goal.

B. Assessment Measure 6 – Direct
- A rubric has been created to assess **written communication** skills. It contains 6 performance areas with a 1 to 4 scale within each of those areas (attached to report).
- Rubric was used to assess graduating seniors in ANSC senior level courses.
- Results: Scores for this rubric were returned by 2 faculty (for 2 courses).

Course	Number of	Mean	% students receiving a score of:

	Seniors	Score	4	3	2	1
ANSC 4273	5	3.40	20%	60%	20%	0%
ANSC 4272	8	3.43	38%	63%	0%	0%
Total	**13**	**3.42**	**31%**	**62%**	**7%**	**0%**

- **In summary:**
  - The target for the Department was that 70% of graduating seniors would score an 'average' or above. In 2021, 93% of the students scored 3 or above and thus the department met this goal.

8. **Overall Recommendations**

There were greater than 70% of the seniors who were rated acceptable in critical thinking, problem solving and communication (both oral and written) skills based on the rubrics developed by the Assessment Committee. It remains a challenge to gather this data from the ANSC senior courses. All senior level Animal Science production courses probably have projects or assignments where some or all of these rubrics could be used; however, it was difficult for some instructors to incorporate them into a course. A common problem is that the course uses team projects vs. individual student's work for these type projects. Another issue is that ANSC majors often do not take these 4000 level courses only in their senior year. They commonly take them as juniors. In this report, the scores only include those students graduating in May 2021. We are missing a number of observations because of how we use these rubrics. The implementation of the required capstone course in 2022 will serve as a way to collect this information.

9. Information pertaining to acceptance rates for 2021 graduating seniors into professional schools and graduate programs was collected by a departmental representative. Reported below is the current information (as of May 12, 2021) which will change as students continue to receive notifications.

- Of 23 students in the ANSC Dept who were known to apply to Veterinary Schools, 4 (17%) were denied admittance, 7 (30%) have not reported and 12 (52%) have been accepted. Below is the list of where students will be attending vet school:

# ANSC students accepted	Vet School
1	**Oklahoma State**
2 +1	**Univ. of Missouri + 1 waitlisted**
2	**Louisiana State University/ LSU**
2	**K-State**
1	**Texas A & M**
1	**Iowa state**
1	**Tennessee**
1	**Mississippi State**

- In addition, one student was accepted as a PhD candidate to Mississippi State, one was accepted into medical school at UAMS and 2 are awaiting dental school notifications.

10. **Action Plan**
   a. At a teaching retreat in May 2019 a plan to add a senior capstone course to the department's curriculum was developed. A single senior capstone course, required for

graduation, would enhance our ability to collect the necessary data for the assessment report. This course has been implemented into the ANSC curriculum and is scheduled to start in 2022.

b. The departmental Assessment Committee should consider continuing to improve upon the information captured in the surveys given to the seniors. Suggestions for improvements include adding to the exit surveys the following questions:

   i. How well did you achieve each of the following departmental learning goals? We simply rewrite as learning objectives and have students self-rate.

   ii. What aspects of your education in this department helped you with your learning and why were they helpful?

   iii. What might the department do differently that would help you learn more effectively, and why would these actions help you? We currently get to this in a round-about way. We just need to rewrite question.

   iv. In the Area of competence portion, include another column allowing students to rate their perceived competence level as freshman – then we can see their perceived growth in each area and get another data point. As an example:

	Area of Competence	Score (1-5) Rate your general competence in this area **BEFORE** you started at the University	Score (1-5) Rate your general competence in this area **NOW**, as a graduating senior
1	Physiology		
2	Genetics		
3	Nutrition		
4	Muscle products		
5	Production/ Mgt		

Performance Area	Capstone 4	Milestone 3	Milestone 2	Benchmark 1
Organization	Organizational pattern (introduction, conclusion, sequenced material in the body, transitions) clearly/ consistently observable and make the presentation cohesive.	Organizational pattern (introduction and conclusion, sequenced material in the body, & transitions) clearly and consistently observable within the presentation.	Organizational pattern (introduction and conclusion, sequenced material in the body, & transitions) intermittent within the presentation.	Organizational pattern (introduction and conclusion, sequenced material in the body, & transitions) is not observable within the presentation.
Central message	Central message is compelling (precisely stated, repeated, memorable, strongly supported.)	Central message is clear and consistent with the supporting material.	Central message is understandable but is not often repeated and not memorable.	Central message can be deduced, but is not explicitly stated in the presentation.
Delivery & Preparedness	Delivery techniques (posture, gesture, eye contact, expressiveness) make the presentation compelling. Speaker polished, confident, prepared and rehearsed.	Delivery techniques (posture, gesture, eye contact, expressiveness) make the presentation interesting. Speaker comfortable. Speaker satisfactorily prepared and rehearsed.	Delivery techniques (posture, gesture, eye contact, expressiveness) make the presentation understandable. Speaker tentative, adequately prepared and rehearsed.	Delivery techniques (posture, gesture, eye contact) detract from understandability of presentation. Speaker uncomfortable, read from notes, inadequately prepared.
Style & Timing	Language choices imaginative, memorable, compelling and enhance the effectiveness of the presentation. Variety of supporting materials effectively utilized. Presentation length appropriate, met criteria.	Language choices thoughtful and generally support effectiveness of the presentation. Supporting materials were satisfactorily utilized. Presentation length appropriate and met criteria.	Language choices are mundane and commonplace and partially support the effectiveness of the presentation. Supporting materials were adequately utilized. Presentation length was appropriate, met criteria.	Language choices are unclear and minimally support the effectiveness of the presentation, not appropriate to audience. Supporting materials were insufficiently utilized. Length was over or under the set criteria.
Critical Thinking	Accurately interprets evidence. Identifies the salient arguments pro and con. Thoughtfully analyzes and evaluates major alternative points of view. Draws warranted conclusions. Justifies results and procedures, explains assumptions and reasons.	Accurately interprets evidence. Identifies relevant arguments pro and con. Offers analyses and evaluations of obvious alternative points of view. Justifies some results, explains reasons. Fairmindedly follows where evidence and reasons lead.	Misinterprets evidence. Fails to identify strong, counter-arguments. Superficially evaluates obvious alternative points of view. Justifies few results, seldom explains reasons. Maintains or defends views based on preconceptions	Offers biased interpretations of evidence. Fails to identify/ dismisses relevant counter-arguments. Superficially evaluates alternative points of view. Argues using false/ irrelevant reasons. Defends views based on preconceptions.
Problem Solving	Constructs clear problem statement & multiple ways to solve problems. Thoughtful solution(s) proposed, elegant evaluation. Complete under-standing of solution, reviews results thoroughly & specific consideration for further work	Problem statement adequate, some strategies apply. Proposal(s) indicate understanding, evaluations adequate. Implements solution on the surface, some consideration of further work needed	Begins to define problem, identifies only a single approach. Proposal doesn't address problem, evaluation brief. Implements solution but ignores relevant factors, little consideration of further work needed	Limited ability to define problem or strategies. Vague proposal, superficial evaluation. Does not directly address problem statement, superficial review of results
Total Points				

Rubrics: Oral Communication, Problem Solving, and Critical Thinking

Performance Area	Capstone 4	Milestone 3	Milestone 2	Benchmark 1
Context of and Purpose	Demonstrates thorough under-standing of context, audience & purpose. Responsive to assigned task(s). Focuses on elements of work	Demonstrates adequate consideration of context, audience and purpose and a clear focus on the assigned task(s)	Demonstrates awareness of context, audience, purpose and to the assigned task.	Demonstrates minimal attention to context, audience, purpose and to the assigned task(s)
Content Development	Uses appropriate, relevant and compelling content to illustrate mastery of subject, convey under-standing, shaping the whole work.	Uses appropriate, relevant and compelling content to explore ideas within the context of the discipline and shape the whole work.	Uses appropriate and relevant content to develop and explore ideas through most of the work	Uses appropriate and relevant content to develop simple ideas in some parts of the work
Disciplinary Conventions	Demonstrates attention to and successful execution of a range of conventions particular to a specific discipline and/or writing task(s) including organization, content, presentation, formatting and style	Demonstrates consistent use of important conventions particular to a specific discipline and/ or writing task(s) including organization, content, presentation and stylistic choices	Follows expectations appropriate to a specific discipline and/ or writing task(s) for basic organization, content and presentation	Attempts to use a consistent system for basic organization and presentation
Sources and Evidence	Demonstrates skillful use of high quality, relevant sources to develop ideas that are appropriate for the discipline and genre of the writing	Demonstrates consistent use of credible, relevant sources to support ideas that are situated within the discipline and genre of the writing	Demonstrates an attempt to use credible/ relevant sources to support ideas that are appropriate for the discipline and genre of the writing	Demonstrates an attempt to use sources to support ideas in the writing
Syntax and Mechanics	Uses graceful language that skillfully communicates meaning to readers with clarity and fluency, virtually error free	Uses straightforward language that generally conveys meaning to readers. The language has few errors	Uses language that generally conveys meaning to readers with clarity, although writing may include some errors.	Uses language that sometimes impedes meaning because of errors in usage.
Critical Thinking	Accurately interprets evidence. Identifies the salient arguments pro and con. Thoughtfully analyzes and evaluates major alternative points of view. Draws warranted conclusions. Justifies results and procedures, explains assumptions and reasons.	Accurately interprets evidence. Identifies relevant arguments pro and con. Offers analyses and evaluations of obvious alternative points of view. Justifies some results, explains reasons. Fairmindedly follows where evidence and reasons lead.	Misinterprets evidence. Fails to identify strong, counter-arguments. Superficially evaluates obvious alternative points of view. Justifies few results, seldom explains reasons. Maintains or defends views based on preconceptions	Offers biased interpretations of evidence. Fails to identify/ dismisses relevant counter-arguments. Superficially evaluates alternative points of view. Argues using false/ irrelevant reasons. Defends views based on preconceptions.
Problem Solving	Constructs clear problem statement & multiple ways to solve problems. Thoughtful solution(s) proposed, elegant evaluation. Complete under-standing of solution, reviews results thoroughly & specific consideration for further work	Problem statement adequate, some strategies apply. Proposal(s) indicate understanding, evaluations adequate. Implements solution on the surface, some consideration of further work needed	Begins to define problem, identifies only a single approach. Proposal doesn't address problem, evaluation brief. Implements solution but ignores relevant factors, little consideration of further work needed	Limited ability to define problem or strategies. Vague proposal, superficial evaluation. Does not directly address problem statement, superficial review of results
Total Points				

Rubrics: Written Communication, Problem Solving, and Critical Thinking