2018 Assessment Results of Animal Science Majors
Department of Animal and Range Sciences
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In the spring of 2018, the Faculty of the Animal Science major met to formulate a plan to assess the program. This document is a report of our findings.

Methods:

After the curriculum mapping exercise, we chose to assess learning Outcome #3 – Demonstrate effective oral and written communication to a range of audiences and within collaborative environments, [communication and collaboration] in ANSC 322 Principles of Animal Breeding and Genetics (Spring semester 2018); and learning Outcome #4 – Use scientific principles to formulate questions, explore solutions, and solve real-world problems and advocate based on science, [problem solving] in ANSC 432R Sheep Management (Spring semester 2018).

For Outcome #3 assessment was conducted with a group assignment (Breeding Management Plans) that had an oral and written presentation component. Each group had 8 to 10 student members. For Outcome #4 assessment was conducted with a group assignment (Group Project – Lamb Feeding Trial) that summarized the wether feeding project that took place this semester at Fort Ellis. This project required the group to analyze data collected on the wethers and to prepare an oral presentation (~12 minutes) and written report. Each group had 4 to 5 student members.

Each group was assigned scores by two evaluators, Dr. Jan Bowman and Dr. Tim DelCurto, using a total of 3 rubrics (attached). A rubric for Assessment of Oral Communication Skills, and a rubric for Assessment of Written Communication Skills (for ANSC 322), and a rubric for Assessment of Problem Solving Skills (for ANSC 432). For the rubrics with a 1-5 scale, an average score that was below a 3 was considered to be below expectations, and any average score of 3 or above was considered to meet minimum standards. For the rubric with a 1-4 scale, an average score that was less than or equal to 2 was considered to be below expectations, and any average score of greater than 2 was considered to meet minimum standards.

Results:

The results of our assessment are presented in Tables 1 and 2.

Table 1. Assessment of Learning Outcome #3: Demonstrate effective oral and written communication to a range of audiences and within collaborative environments (communication and collaboration)

ANSC 322 group	Oral Communication	Written Communication
	Scale 1-5, < 3 = inadequate, ≥ 3 = adequate	
#1	4.5	3.0

#2	4.4	3.0
#3	3.6	2.6
#4	3.8	4.0
Average	4.08	3.15

On the selected assignment, 100% of the groups in ANSC 322 were considered acceptable for oral communication, while 75% of the groups were considered acceptable for written communication. Our expected rate was 80%.

Table 2. Assessment of Learning Outcome #4: Use scientific principles to formulate questions, explore solutions, and solve real-world problems and advocate based on science (problem solving)

ANSC 432 group	Problem Solving
	Scale 1-4, ≤ 2 = inadequate, > 2 = adequate
#1	3.9
#2	3.7
#3	3.2
#4	3.6
Average	3.6

On the selected assignment, 100% of the groups in ANSC 432 were acceptable at problem solving, which was above our minimum expected rate of 80%.

General Comments:

1. All of the groups met expectations for oral communication skills with a range of scores from 3.6 to 4.5 on a 5-point scale.

2. Average written communication skill scores were almost a full point lower on a 5-point scale than scores for oral communication skills. This suggests the written communication skills should be of greater concern than oral communication skills. Only 75% of the groups met the minimum communication skill standards, with several groups having individual Skills Rubric Performance areas (Context & Purpose, Content Development, Genre and Disciplinary Conventions, Sources and Evidence, and Control of Syntax and Mechanics) lower than 3 (considered inadequate).

3. Specific areas of written communication that need to be addressed include:

     a. Content Development. Most students effectively used various aspects of ANSC 322 in their reports, but the relationship of the genetic breeding plan to their overall production model was vague, misleading, and often lacking detail.

     b. Sources and Evidence. Most groups had a limited number to no references throughout their Breeding Plan. Only one of four groups used sources beyond AI Studs or Breed Association websites.

4. This assessment was effective in evaluating oral and written communication in a group project setting. However, it is difficult to assess the degree of collaboration that was happening within the individual groups. These groups were large with 8 to 10 students per group. It is likely that some students do most of the work and not all groups worked well as a functioning team.

5. Problem solving seemed to be a greater strength of the groups than communication skills. On a 1-4 scale, the average group scores ranged from 3.2 to 3.9 for problem solving.

We identified some challenges related to our student's skills:

1. Like our 2017 Animal Science Assessment, we identified a number of weaknesses in our students' written communication skills.
2. Students had difficulty understanding the context of and purpose for the assigned writing.
3. Students had difficulty developing content and writing with mastery of the subject.
4. Students had difficulty with organization, appropriate content, and many basic writing skills.
5. Students had difficulty supporting ideas with credible sources appropriate for the discipline.

We also identified some possible solutions:

1. Incorporate more writing assignments in Animal Science courses.
2. Provide example papers, grading rubrics and the common mistakes of most papers.
3. We need to do a better job of articulating the assignment expectations and standards.

Future assessment considerations:

1. Having all rubrics with a standard scale would be more effective.
2. Finding a way to assess degree of collaboration within a group would be useful.

Department of Animal and Range Sciences
Animal Science Assessment 2018 - Oral Communication Skills Rubric

Student _____ Course _____ Date _____

Oral communication is a prepared, purposeful presentation designed to increase knowledge, to foster understanding, or to promote change in the listener's attitudes, values, believes or behavior.

Performance Area	Passing			Not Adequate		Score
	Rating = 5	Rating = 4	Rating = 3	Rating = 2	Rating = 1	
Organization	Organizational pattern (introduction, sequenced material within body, conclusion, transitions) is clearly and consistently observable and skillful. Content is cohesive	Organizational pattern is clearly and consistently observable	Organizational pattern intermittently observable	Organizational pattern is not observable.	Presentation lacks organization, majority of content is not cohesive or related to purpose.	
Language	Language is imaginative, memorable and compelling, enhances effectiveness of presentation. Appropriate to audience	Language is thoughtful, generally supports presentation. Appropriate to audience	Language is mundane, commonplace, and partially supports presentation. Some language in appropriate	Language very casual, minimally supports presenta-tion, some language not appropriate	Poor and confusing language. Does not support content and is not appropriate for setting or audience	
Delivery (Posture, gesture, eye contact and vocal expressiveness)	Posture, gesture, eye contact and vocal expressiveness make presentation compelling. Speaker appears polished, confident and professional.	make presentation interesting. Speaker appears comfortable and professional.	make presentation understandable. Speaker appears tentative but professional.	distract audience from understanding presentation. Speaker is difficult to hear - appears uncomfortable.	make presentation very difficult to understand. Speaker appears scared and unprofessional	
Supporting Material (explanations, examples, illustrations, statistics, analogies, relevant quotations)	Variety of supporting materials make appropriate reference to information or analysis that significantly supports the presentation or establishes the presenter's credibility on topic.	Supporting materials make appropriate reference to information or analysis that generally supports presentation or presenter's credibility.	Supporting materials make appropriate reference to information or analysis that partially supports the presentation or establishes the presenter's credibility.	Supporting materials not related to information or analysis or does not support presentation or presenter's credibility	Insufficient supporting materials. Most do not support presentation or presenter's credibility	
Central Message	Central message compelling – precisely stated, appropriately repeated, memorable, strongly supported	Central message clear and consistent with the supporting material	Central message is basically understandable, but not often repeated, not memorable	Central message stated only once and is unclear	Central message unclear, and not specifically stated	
					Total	
					Overall Score = Total/5	

Department of Animal and Range Sciences
Animal Science Assessment 2018 - Written Communication Skills Rubric

Student _____ Course _____ Date _____

Written communication is the development and expression of ideas in writing. Written communication involves learning to work in many genres and styles (academic, scientific). Written communication abilities develop through interactive experiences across the curriculum.

Performance Area	Passing			Not Adequate		Score
	Rating = 5	Rating = 4	Rating = 3	Rating = 2	Rating = 1	
Context of and Purpose for Writing (audience, purpose, assigned task)	Demonstrates a thorough understanding of context and purpose that is responsive to the assigned tasks, and focuses all elements of the work.	Demonstrates adequate consideration of context and purpose with a clear focus on assigned task.	Demonstrates awareness of context, purpose and the assigned task.	Demonstrates minimum awareness of context, purpose and assigned task.	Does not understand or address purpose, context or assigned task.	
Content Development	Uses appropriate, relevant and compelling content – shows mastery of subject – conveys writer's understanding of subject.	Uses appropriate & relevant content to explore ideas within context of discipline.	Uses appropriate & relevant content to develop and explore ideas through most of work.	Uses appropriate content to develop simple ideas.	Content not related or does not develop ideas.	
Genre and Disciplinary Conventions (formal and informal rules/ expectations for particular forms or academic fields)	Demonstrated detailed attention to wide range of conventions for a specific discipline or writing task including organization, content, presentation, formatting, etc.	Demonstrated consisted use of important conventions for a specific discipline or writing task including organization, content, presentation, formatting, etc.	Follows expectations appropriate to for a specific discipline or writing task for basic organization, content and presentation.	Attempts to use some expectations for basic organization of a paper	Paper not organized, content not appropriate, poor presentation, missing most basic writing skills.	
Sources and Evidence	Skillful use of high quality, credible, relevant sources to develop ideas appropriate for the discipline	Consistent use of high quality, credible, relevant sources to support ideas within discipline	Attempts to use some credible, relevant sources to support ideas appropriate for the discipline	Attempts to support ideas with a source (source not credible, relevant or related)	No attempt to support ideas presented	
Control of 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 – has few errors	Uses language that generally conveys meaning to readers with clarity, but wiring may include some errors	Uses language that poorly conveys meaning, is not clear and has many errors.	Language does not convey meaning, is unclear and full of errors.	
					Total	
					Overall Score = Total/5	

Montana State University
Department of Animal and Range Sciences
Animal Science Assessment 2018
Problem Solving Skills Rubric

Student _____ Course _____ Date _____

Intended Outcome: The student will use inquiry, quantitative, and analytical reasoning to solve problems.

Performance Area	Passing			Not Adequate		Score
	Rating = 5	Rating = 4	Rating = 3	Rating = 2	Rating = 1	
Defining the problem	Student states the problem clearly and identifies underlying issues.		Student adequately defines the problem.	Student fails to define the problem adequately.	Student does not identify the problem.	
Developing a plan to solve the problem	Student develops a clear and concise plan to solve the problem, with alternative strategies, and follows the plan to conclusion.		Student develops an adequate plan and follows it to conclusion.	Student develops a marginal plan, and does not follow it to conclusion.	Student does not develop a coherent plant to solve the problem.	
Collecting and analyzing information	Student collects information from multiple sources and analyzes the information in-depth.		Student collects adequate information and performs basic analyses.	Student collects inadequate information to perform meaningful analyses.	Student collects no viable information.	
Interpreting findings and solving the problem	Student provides a logical interpretation of the findings and clearly solves the problem, offering alternative solutions.		Student provides an adequate interpretation of the findings and solves the problem, but fails to provide alternatives.	Student provides an inadequate interpretation of the findings and does not derive a logical solution to the problem.	Student does not interpret the findings/reach a conclusion.	
					Total	
					Overall Score = Total/4	