Program Assessment Plan/Report
AEAB GRAD Program
University of Arkansas
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Department Name & Contact Information

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Department Mission

Advanced study in Agricultural Economics and Agricultural Business provides students with state of the art knowledge of theory and methods with an ability to affectively apply said knowledge in their career. Thus, enhancing students' ability for leadership positions in the dynamic environment of contemporary agribusiness and production agriculture.

Program Goals

- Increase students' knowledge of core concepts and principles in agricultural economics.
- Develop students that can effectively identify and analyze issues of importance to society and understand which tools are most appropriate to analyze and solve the economic problems facing society.
- Develop students that can be effective leaders and agents of change in managing resources and people leading to a more profitable and sustainable agribusiness community / world.
- Improve students' ability to communicate key concepts and analytical findings in a clear and concise manner.

Summary of AGEC MS Assessment

Overall, the department appears to be doing a great job of preparing students to begin their professional careers as Agricultural Economics practitioners. The data that we do currently have indicates that we are performing well in providing our students with the knowledge and skills needed to succeed in Agricultural Economics. Additionally, we have been performing well with getting our MS thesis students engaged with other professionals in academia and the private sector via collaborations on publications and presentations at professional meetings.

STUDENT LEARNING OUTCOME 1: PROBLEM SOLVING

Students graduating from the AGECMS program will understand, identify, analyze (utilizing the appropriate research methods, quantitative tools, and information technology), and formulate solutions to economic problems in the private and public sectors dealing with issues concerning the food and fiber production, processing and distribution and managing natural resources.

Assessment Measure 1a. *Thesis Project - Thesis Students*

- Students' work for their theses projects will be assessed for how well they identified the key issue being studied and identified appropriate theory and methods to discover a solution.
- This will be indirectly evaluated by the student's theses committee.
- Thesis committee will review thesis then examine the student based on his understanding of key theories and methods and why those concepts were ideal for the problem being examined.

Acceptable and **Ideal Targets**

- Students will be able to successfully complete and defend their theses.
- Acceptable: All students will be able to successfully defend their theses each year. Half of these defenses will not need major revisions.
- Ideal: All students will be able to successfully defend their theses within twenty-four (24) months of beginning the AGECMS program. Seventy-five percent (75%) of students submitting their theses for defense will not need major revision. Additionally, twenty percent (20%) will be able to submit a journal manuscript within 120 days of their defense.

Key Personnel

- Thesis Committee will determine the acceptability of the thesis and whether major revisions are needed.
- The Graduate secretary will track how many manuscripts are submitted post defense.

Summary of Findings

- Students starting the AGECMS program in the fall 2015 were able to successfully prepare and defend their thesis. At the conclusion of the 2017 summer term, four of the nine thesis students had successfully deposited their theses within the expected twenty-four month time frame. Five of the nine students completed their thesis within 30 months of their start of the AGECMS program.

Recommendations

- Given the successful completion five of the nine thesis within the expected two year period, we could do a better job of getting all of the students to identify a project early in their program so that they can complete their degree in the expected time frame.

Assessment Measure 1b. *Case Study Project - Non-Thesis Students*

- Students will be given a case to examine during the seminar period.
- This will be indirectly evaluated by the seminar instructor.
- Seminar instructor will examine how students utilized the appropriate theories and methods and why those concepts were ideal for the problem being examined.

Acceptable and **Ideal Targets**

- Students will be able to successfully complete and present their case study analysis.
- Acceptable: Fifty percent (50%) of students will be able to successfully develop a solution to the issue identified in the case and use appropriate theories to develop their conclusions.
- Ideal: All students will be able to successfully develop a solution to the issue identified in the case and use appropriate theories to develop their conclusions.

Key Personnel

- Seminar Instructor

Summary of Findings.

- Non-thesis students were divided into three teams to assess various US Farm policies and how those policies impact producers and consumers today. The policies analyzed were the: 1) Packers and Stockyard Act of 1921; 2) The Milk Marketing Act of 1937; and 3) Perishable Agricultural Commodities Act. All three student groups successfully presented their cases to faculty and other interested parties in late April 2017.

Recommendations

- Students need to be better primed to address the questions specifically given to them.
- Highlight oral communication more in seminar and other classes to strengthen students' ability to present results to constituent groups.

Assessment Measure 2. *Problem Solving forces at work*

- Students will be evaluated on their ability to utilize the appropriate theories and methodologies to attack the problem given.
- This will be directly evaluated by the thesis committee or seminar instructor according to the Problem Solving Rubric below.
- Seminar instructor or Thesis committee will examine how well students clearly define the problem being addressed; identify the appropriate theories and methodologies to examine the problem; formulate consistent hypotheses and solutions; evaluate alternative solutions; prescribe the best solution; and evaluate potential outcomes and additional work needed.

Acceptable and **Ideal Targets**

- Acceptable: Fifty percent (50%) or more of students will be able to score average or above (see Problem Solving rubric).
- Ideal: Seventy-five percent (75%) or more of students will be able to score average or above (see Problem Solving rubric).

Key Personnel

- Seminar Instructor or Theses Committees

Summary of Findings.

- The Problem Solving Rubric was utilized to evaluate eleven students presenting their seminar Case Study projects. The students were evaluated by two professors (Rainey and Thomsen). The results are below (see Problem Solving Rubric in Appendix A for description of what is expected for each cell).

Non-Thesis Students Problem Solving Summary results

	Excellent (4)	Above Average (3)	Average (2)	Needs Improvement (1)	Average student score on a 1-4 scale
Define Problem	32	30	8	0	3.18
Identify Strategies	32	42	0	0	3.36
Propose Solutions / Hypotheses	32	30	8	0	3.18
Evaluate Potential Solutions	32	30	8	0	3.18
Strategy to Implement Solution	16	42	8	0	3.00
Evaluate (Potential) Outcomes	16	54	0	0	3.18

- The Problem Solving Rubric was utilized to evaluate seven students presenting their final thesis results (Defense). The students were evaluated by the professors constituting their committee (the number of evaluators ranged from two – five: committees consist of a minimum of three members but not all faculty submitted their assessment). The results are below (see Problem Solving Rubric in Appendix A for description of what is expected for each cell).

Thesis Students Problem Solving Summary results

	Excellent (4)	Above Average (3)	Average (2)	Needs Improvement (1)	Average student score on a 1-4 scale
Define Problem	64	18	0	0	3.73
Identify Strategies	56	24	0	0	3.64
Propose Solutions / Hypotheses	60	21	0	0	3.68
Evaluate Potential Solutions	60	21	0	0	3.68
Strategy to Implement Solution	48	30	0	0	3.55
Evaluate (Potential) Outcomes	64	18	0	0	3.73

- The majority of students are performing "above average" or higher.

STUDENT LEARNING OUTCOME 2: COMMUNICATION

Graduates will enhance their ability to prepare, organize, and deliver information to effectively communicate (orally, written, and electronically) with scientific, professional, and non-technical audiences.

Assessment Measure 1. *Project presentation*

- Students will be required to provide an oral defense of their thesis or case-study project (non-thesis)
- This will be directly evaluated by the thesis committee or seminar instructor.
- Students will be evaluated using the Oral Communication Rubric below to assess how well they organize their thoughts; effectively utilize language to keep the audience engaged; demonstrate appropriate posture, gestures and eye contact to project confidence and competence; provide adequate supporting material to help cement key concepts in audiences mind; and the overall presentation effectively demonstrates the key points from the findings.

Acceptable and **Ideal Targets**

- Acceptable: Fifty percent (50%) or more of students will be able to score average or above (see Oral Communication rubric).
- Ideal: Seventy-five percent (75%) or more of students will be able to score average or above (see Oral Communication rubric).

Key Personnel

- Theses examination committees and seminar instructor(s).

Summary of Findings

- The Oral Communication Rubric was utilized for eleven students presenting their seminar case study project. The students were evaluated by two professors (Rainey and Thomsen). The results are below (see Oral Communication Rubric in Appendix A for description of what is expected for each cell).

Case-Study Oral Presentation Summary results

	Excellent (4)	Above Average (3)	Average (2)	Needs Improvement (1)	Average student score on a 1-4 scale
Organization	44	33	0	0	3.50
Language	28	33	8	0	3.14
Delivery	44	33	0	0	3.50
Supporting Material	44	33	0	0	3.50
Central Message	44	33	0	0	3.50

- The rubric has been recently adopted and was utilized for five students presenting their final thesis results (Defense). The students were evaluated by the professors constituting their committee (the number of evaluators ranged from two – four: committees consist of a minimum of three members but not all faculty submitted their assessment). The results are below (see Oral Communication Rubric in Appendix A for description of what is expected for each cell).

Thesis Oral Presentation Summary results

	Excellent (4)	Above Average (3)	Average (2)	Needs Improvement (1)	Average student score on a 1-4 scale
Organization	68	15	0	0	3.77
Language	64	18	0	0	3.73
Delivery	68	15	0	0	3.77
Supporting Material	64	18	0	0	3.73
Central Message	60	21	0	0	3.68

- The majority of the non-thesis and thesis students are performing “Above Average” or “Excellent”.

Recommendations

- Continue to work with students on communicating their findings in a professional manner.

Assessment Measure 2. *Theses / Case-study project report*

- Students will be required to provide a written document highlighting the critical issues and key findings for their project.
- This will be directly evaluated by the thesis committee or seminar instructor.
- Students will be evaluated using the Written Communication Rubric below to assess how well they convey the context and purpose for their project; develop content to appropriately express significance of the project and the writers understanding of key parameters and findings; properly communicate the relevance of theory and methods employed; properly site credible and reliable sources for information; and properly utilize language and grammar to deliver their message.

B. Acceptable and **Ideal Targets**

- Acceptable: Fifty percent (50%) or more of students will be able to score average or above (see Written Communication rubric).
- Ideal: Seventy-five percent (75%) or more of students will be able to score average or above (see Written Communication rubric).

C. Key Personnel

- Theses examination committees and seminar instructor(s).

D. Summary of Findings

- The Non-Thesis students each submitted a report on their analysis of the issue assigned to the group: 1) Packers and Stockyard Act of 1921; 2) The Milk Marketing Act of 1937; and 3) Perishable Agricultural Commodities Act.

Non-Thesis Written Communication Summary results

	Excellent (4)	Above Average (3)	Average (2)	Needs Improvement (1)	Average student score on a 1-4 scale
Contest and Purpose	44	33	0	0	3.50
Content Development	0	54	8	0	2.82
Genre & Disciplinary Conventions	28	45	0	0	3.32
Sources & Evidence	56	12	8	0	3.45
Control of Syntax	60	21	0	0	3.68

- The rubric has been recently adopted and was utilized for seven students presenting their final thesis results (Defense). The students were evaluated by the professors constituting their committee (the number of evaluators ranged from two – five: committees consist of a minimum of three members but not all faculty submitted their assessment). The results are below (see Written Communication Rubric in Appendix A for description of what is expected for each cell).

Thesis Written Communication Summary results

	Excellent (4)	Above Average (3)	Average (2)	Needs Improvement (1)	Average student score on a 1-4 scale
Contest and Purpose	60	21	0	0	3.68
Content Development	68	12	0	0	3.64
Genre & Disciplinary Conventions	48	27	2	0	3.50
Sources & Evidence	64	18	0	0	3.73
Control of Syntax	68	15	0	0	3.77

- The majority of the non-thesis and thesis students are performing "Above Average" or "Excellent" with regards to their written research work.

Recommendations

- Greater effort needs to be dedicated to informing students on proper writing prose.

Assessment Measure 3. ***Presentations at professional conferences***

- Students will be encouraged to submit material (oral presentations / posters / case studies) to professional organizations to enhance their communication skills.
- This will be indirectly evaluated by the graduate program coordinator.
- Students will be evaluated on the number of abstract submissions to professional organizations and the number of submissions selected for presentation.

B. Acceptable and **Ideal Targets**

- Acceptable: At least 20% of students (50% of thesis students) will submit proposals to at least one professional organization before graduation, with at least 10% (30% for thesis students) having a submission accepted for presentation.
- At least 40% of students (80% of thesis students) will submit proposals to at least one professional organization before graduation, with at least 20% (50% for thesis students) having a submission accepted for presentation.

C. Key Personnel

- Graduate program coordinator with significant support from thesis advisors and Graduate Faculty.

D. Summary of Findings.

- In 2016-17, 6 current students were involved in 7 presentations at professional meetings or industry groups.

- In 2016-17, 2 recent graduates were involved in 6 presentations at professional meetings or to industry groups.
- No numbers were immediately available for students that submitted proposal but were not selected for presentation.
- We are meeting our goal of having thesis students actively engaged the profession.

Recommendations

- Interpretation of results in the context of the Learning Outcome and the program.
  - The level of participation in Professional settings indicates that we are succeeding in getting students started on their professional career.
  - We need to do a better job of getting non-thesis students engaged with presenting their knowledge and skills at professional settings.

STUDENT LEARNING OUTCOME 3: KNOWLEDGE OF AGRICULTURAL ECONOMICS THEORY AND METHODS

The following items apply to EACH Assessment Measure.

Assessment Measure 1. *Mastery of course subject matter*

- Students will be assessed as to how well they comprehend material in their course of study.
- Students will be indirectly assessed by course instructor.
- Students will be given a series of assignments, exams, and/or projects to demonstrate their knowledge of key Agricultural Economic Concepts and demonstrate their ability to use the appropriate concepts in a given situation.
- Students will be assessed grades based on their demonstrated mastery of core concepts and appropriate use.

Acceptable and **Ideal Targets**

- Acceptable: At least 50% of the students should complete their course of study with a "B+" average (3.33 GPA on a 4.0 scale)
- Ideal: At least 75% of the students should complete their course of study with a "B+" average (3.33 GPA on a 4.0 scale)

Key Personnel

- Instructor of record for each Agricultural Economics course taken. Average will be compiled by Graduate coordinator with aid of Graduate Committee support staff.

Summary of Findings.

- As seen in the table below, Students have averaged over 3.33.

Year	Number of Graduates	Average GPA
2016-17	20	3.60 (90% > 3.33)

Recommendations

- We need to continue to attract students that are well prepared to succeed at the MS level.

- Instructors need to continue to innovate to make content accessible and understandable to students.

Assessment Measure 2. *Core content exam*

- All students are required to take Microeconomics principles and Quantitative Methods. Students will be examined on key concepts at the beginning of each class and again at the end of each class (see list of questions in appendix).
- This will be directly evaluated by the course instructor.
- The change in percentage correct will be reported.

Acceptable and **Ideal Targets**

- Acceptable: Students will show an average increase of 20% after taking the course, i.e. on average students will correctly answer 35% of the questions at the beginning of the course and 55% or better by the end of the course.
- Ideal: Students will show an average increase of 40% after taking the course, i.e. on average students will correctly answer 35% of the questions at the beginning of the course and 75% or better by the end of the course.

Key Personnel

- Course Instructors with aid from Graduate Committee support staff.

Summary of Findings.

- For the fall 2016 term, all student in AGEC 5103 "Ag Microeconomics" and AGEC 5403 "Quant Methods" were administered the basic content quiz at the beginning of the semester and again at the end of the semester. The average result on the quiz were: AGEC 5103: fifty-one percent (51%) correct at the beginning of the semester and ninety-three percent (93%) at the end of the semester; AGEC 5403: twenty-six percent (26%) correct at the beginning of the semester and eighty-six percent (86%) at the end of the semester.
- The average score improved by at least 42% for both classes.

Recommendations

- Continue to instruct students so that they grasp key concepts in core classes.

Overall Recommendations

- We need to do a better job of stressing the importance of active engagement in the profession to non-thesis students.
- We need to find ways to prepare student to better deliver their analytic findings to constituent groups / lay audiences.

Action Plan

AGEC is highlighting professional engagement during this assessment period. To increase MS student professional engagement (oral and written communication) we will adopt the following steps.

- We will provide encouragement to students to become active participants in the profession.
- Specific actions will include:
    - Challenging students to become more actively engaged in the profession, via academic and/or industry presentations.

- Provide incentives for students that are actively engaged, i.e. providing more weight to the number of presentations given when considering students for outstanding awards. Also, provide some sort of financial incentive for professional engagement.
- The primary overseer of engagement will be the Thesis advisor for Thesis students and the Seminar instructor and Graduate Coordinator for non-thesis students.

Supporting Attachments

- Appendix A: Rubrics for Oral Communication, Written Communication, and Problem Solving are attached.
- Appendix B: The questions for the Core Exam.

Appendix A

The following pages contain the Rubrics to be used in evaluating Oral Communication, Written Communication, and Problem Solving.

ORAL COMMUNICATION VALUE RUBRIC

Adapted from AACU

Definition

Oral communication is a prepared, purposeful presentation designed to increase knowledge, to foster understanding, or to promote change in the listeners' attitudes, values, beliefs, or behaviors.

Evaluators are encouraged to assign a zero to any work sample or collection of work that does not meet benchmark (cell one) level performance.

	Excellent	Above Average	Average	Needs Improvement
Organization	Organizational pattern (specific introduction and conclusion, sequenced material within the body, and transitions) is clearly and consistently observable and is skillful and makes the content of the presentation cohesive.	Organizational pattern (specific introduction and conclusion, sequenced material within the body, and transitions) is clearly and consistently observable within the presentation.	Organizational pattern (specific introduction and conclusion, sequenced material within the body, and transitions) is intermittently observable within the presentation.	Organizational pattern (specific introduction and conclusion, sequenced material within the body, and transitions) is not observable within the presentation.
Language	Language choices are imaginative, memorable, and compelling, and enhance the effectiveness of the presentation. Language in presentation is appropriate to audience.	Language choices are thoughtful and generally support the effectiveness of the presentation. Language in presentation is appropriate to audience.	Language choices are mundane and commonplace and partially support the effectiveness of the presentation. Language in presentation is appropriate to audience.	Language choices are unclear and minimally support the effectiveness of the presentation. Language in presentation is not appropriate to audience.
Delivery	Delivery techniques (posture, gesture, eye contact, and vocal expressiveness) make the presentation compelling, and speaker appears polished and confident.	Delivery techniques (posture, gesture, eye contact, and vocal expressiveness) make the presentation interesting, and speaker appears comfortable.	Delivery techniques (posture, gesture, eye contact, and vocal expressiveness) make the presentation understandable, and speaker appears tentative.	Delivery techniques (posture, gesture, eye contact, and vocal expressiveness) detract from the understandability of the presentation, and speaker appears uncomfortable.
Supporting Material	A variety of types of supporting materials (explanations, examples, illustrations, statistics, analogies, quotations from relevant authorities) make appropriate reference to information or analysis that significantly supports the presentation or establishes the presenter's credibility/authority on the topic.	Supporting materials (explanations, examples, illustrations, statistics, analogies, quotations from relevant authorities) make appropriate reference to information or analysis that generally supports the presentation or establishes the presenter's credibility/authority on the topic.	Supporting materials (explanations, examples, illustrations, statistics, analogies, quotations from relevant authorities) make appropriate reference to information or analysis that partially supports the presentation or establishes the presenter's credibility/authority on the topic.	Insufficient supporting materials (explanations, examples, illustrations, statistics, analogies, quotations from relevant authorities) make reference to information or analysis that minimally supports the presentation or establishes the presenter's credibility/authority on the topic.
Central Message	Central message is compelling (precisely stated, appropriately repeated, memorable, and strongly supported by economic principles and appropriate methodology.)	Central message is clear and consistent with the supporting material and is based on relevant economic principles and methodologies.	Central message is basically understandable but is not often repeated and is not memorable. Nor is the message consistently tied to economic principles and methodologies.	Central message can be deduced, but is not explicitly stated in the presentation. No direct linkage to economic principles nor methodologies is included in the presentation.

WRITTEN COMMUNICATION VALUE RUBRIC

Adapted from AACU

Definition

Written communication is the development and expression of ideas in writing. Written communication involves learning to work in many genres and styles. It can involve working with many different writing technologies, and mixing texts, data, and images. Written communication abilities develop through iterative experiences across the curriculum.

Evaluators are encouraged to assign a zero to any work sample or collection of work that does not meet benchmark (cell one) level performance.

	Excellent	Above Average	Average	Needs Improvement
Context of and Purpose for Writing *Includes considerations of audience, purpose, and the circumstances surrounding the writing task(s).*	Demonstrates a thorough understanding of context, audience, and purpose and incorporates relevant economic theory and methodology. Written material is responsive to the assigned task(s) and focuses all elements of the work.	Demonstrates adequate consideration of context, audience, and purpose and incorporates relevant economic theory and methodology and a clear focus on the assigned task(s) (e.g., the task aligns with audience, purpose, and context).	Demonstrates awareness of context, audience, purpose, and to the assigned tasks(s) and mentions related economic theory and methodology (e.g., begins to show awareness of audience's perceptions and assumptions).	Demonstrates minimal attention to context, audience, purpose, and to the assigned tasks(s) (e.g., expectation of instructor or self as audience).
Content Development	Uses appropriate, relevant, and compelling content to illustrate mastery of the subject, conveying the writer's understanding, and 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.
Genre and Disciplinary Conventions *Formal and informal rules inherent in the expectations for writing in particular forms and/or academic fields (please see glossary).*	Demonstrates detailed attention to and successful execution of a wide range of conventions particular to a specific discipline and/or writing task (s) including organization, content, presentation, formatting, and stylistic choices	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, credible, relevant sources to develop ideas that are appropriate for the agricultural economics.	Demonstrates consistent use of credible, relevant sources to support ideas that are situated within the agricultural economics writing.	Demonstrates an attempt to use credible and/or relevant sources to support ideas that are appropriate for agriculture economics.	Demonstrates an attempt to use sources to support ideas in the writing relevant to agricultural economics.
Control of Syntax and Mechanics	Uses graceful language that skillfully communicates meaning to readers with clarity and fluency, and is virtually error-free.	Uses straightforward language that generally conveys meaning to readers. The language in the portfolio 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.

PROBLEM SOLVING VALUE RUBRIC

Adapted from AACU

Definition

Problem solving is the process of designing, evaluating, and implementing a strategy to answer an open-ended question or achieve a desired goal.

	Excellent	Above Average	Average	Needs Improvement
Define Problem	Demonstrates the ability to construct a clear and insightful problem statement with evidence of all relevant Agricultural Economics Principles.	Demonstrates the ability to construct a problem statement with evidence of most relevant Agricultural Economics Principles, and problem statement is adequately detailed.	Begins to demonstrate the ability to construct a problem statement with evidence of most relevant Agricultural Economics Principles, but problem statement is superficial.	Demonstrates a limited ability in identifying a problem statement or related Agricultural Economics Principles.
Identify Strategies	Identifies multiple approaches for solving the problem that apply within a specific context.	Identifies multiple approaches for solving the problem, only some of which apply within a specific context.	Identifies only a single approach for solving the problem that does apply within a specific context.	Identifies one or more approaches for solving the problem that do not apply within a specific context.
Propose Solutions / Hypotheses	Proposes one or more solutions/hypotheses that indicates a deep comprehension of the problem. Solution/hypotheses are sensitive to contextual factors as well as all of the following: ethical, logical, and cultural dimensions of the problem.	Proposes one or more solutions/hypotheses that indicates comprehension of the problem. Solutions/hypotheses are sensitive to contextual factors as well as the one of the following: ethical, logical, or cultural dimensions of the problem.	Proposes one solution/hypothesis that is "off the shelf" rather than individually designed to address the specific contextual factors of the problem.	Proposes a solution/hypothesis that is difficult to evaluate because it is vague or only indirectly addresses the problem statement.
Evaluate Potential Solutions	Evaluation of solutions is deep and elegant and considers relevant economic principles and decision tools, reviews logic/reasoning, examines feasibility of solution, and weighs impacts of solution.	Evaluation of solutions is and considers relevant economic principles and decision tools, reviews logic/reasoning, examines feasibility of solution, and weighs impacts of solution.	Evaluation of solutions is brief relevant economic principles and decision tools,, reviews logic/reasoning, examines feasibility of solution, with limited attention to impacts of solution.	Evaluation of solutions is superficial relevant economic principles and decision tools, reviews logic/reasoning, examines feasibility of solution, but ignores the impacts of solution.
Implement Solution	Implements the solution in a manner that addresses thoroughly and deeply multiple contextual factors of the problem.	Implements the solution in a manner that addresses multiple contextual factors of the problem in a surface manner.	Implements the solution in a manner that addresses the problem statement but ignores relevant contextual factors.	Implements the solution in a manner that does not directly address the problem statement.
Evaluate Outcomes	Reviews results relative to the problem defined with thorough, specific considerations of need for further work.	Reviews results relative to the problem defined with some consideration of need for further work.	Reviews results in terms of the problem defined with little, if any, consideration of need for further work.	Reviews results superficially in terms of the problem defined with no consideration of need for further work

Appendix B

Questions for Microeconomics Core Competency.

(1). The relationship between a consumer's Utility, *U*, and the quantities of two goods, *x* and *y* is expressed as $U = x^2y$. The consumer's marginal utility of consumption of *x* is [the derivative of *U* with respect to *x*, denoted as $\partial U/\partial x$]:

A. x^2
B. y
C. x^2y
D. $2xy$
E. I don't know.

(2). The government is considering two alternatives to help reduce education cost. Plan A provides eligible households with a $1,000 voucher that can be used for education expenses. Plan B mails a $1,000 check to eligible households. Which plan will consumers prefer?

A. Plan A.
B. Plan B.
C. Indifferent between plan A and plan B.
D. Some consumers prefer B, other consumers are indifferent between plan A and plan B.
E. I don't know.

(3). Blake is currently a manager of a Walmart store, making $50,000/year. He has recently inherited 1,000 acres farm land. The going rate for farm land rental in his area is about $30/acre. Crop revenue is $650/acre and all the non-land production cost is $580/acre (e.g., seed, fertilizer, fuel, crop insurance, machine repairs). If Blake decides to quit the Walmart job and manage the farm himself, what is his economic profit (crop revenue – economic cost)?

A. $70,000.
B. $40,000.
C. –$10,000.
D. $10,000.
E. I don't know.

(4). Which firm does NOT have economies of scale?

A. When Walmart expands its output (retail services), it can get lower prices for its major input: things Walmart sells in stores.

B. The more electricity a nuclear power plant produces, the lower is its average cost.

C. To expand output, an oil firm has to move from cheaper inputs (fossil fuel directly pumped out of oil wells) to more expensive inputs (oil extracted from oil sand).

D. The marginal cost of adding one more consumer is almost zero for telecommunication companies.
E. I don't know.

(5). Which policy is the most efficient one?

A. A policy that generates the largest amount of consumer surplus.

B. A policy that generates the largest amount of producer surplus.

C. A policy that generates the largest amount of social welfare (consumer surplus and producer surplus).

D. A policy that benefits all consumers equally.

E. I don't know.

AGEC 5403 Core Competency Questions

1) Given a mean of 23 and a standard deviation of 7 assuming a normal distribution what is the probability of a random draw being greater than 17.9?
2) In simulation analysis why would you use a triangular distribution as opposed to a normal distribution?
3) Why is an adjusted R^2 always less than or equal to the R^2?
4) What role does a non-binding constraint play in determining a feasible solution?
5) Why is it important to assume that the error terms in an OLS regression analysis are normally distributed?