MISSION

The mission of the Master of Science in Agriculture degree program is to enhance the career trajectory of agricultural professionals, practitioners, and educators by improving their ability to apply new and emerging scientific findings and technologies to the advancement and expansion of their disciplines through:

1) Successful completion of high quality courses designed to support expertise expansion in targeted areas or disciplines;
2) Participation in an immersion-based high quality research experience, internships, or project-based experience;
3) Opportunities to disseminate knowledge through participation in and/or development of extension programs or media.

The degree program is primarily designed to support the educational advancement of place bound, time bound students in an online course delivery format; however, students on campus also may access the degree program.

The overall goal of the program is to prepare Master's level graduates for professional, practitioner, and educator opportunities in agricultural and related fields, so that they may provide leadership and disseminate knowledge to an increasingly complex society.

MS IN AGRICULTURE PROGRAM OBJECTIVES

1. To prepare students to become experts in professional fields related to agriculture.
2. To prepare students to become outstanding educators or practitioners in agricultural disciplines.
3. To prepare students to become outstanding leaders and team players in collaborative and interdisciplinary application of their expertise to address local, regional, national and/or global problems associated with agriculture.
4. To provide students with an experiential-based research opportunity designed to translate content provided in coursework to reality.
5. To both enhance the visibility and impact of graduate programs in agricultural sciences and provide students with a pathway for manifesting their career objectives.
Option-specific Objectives

Food Science and Management (FSM): To address the demand for managers who understand both research and economic factors affecting food production, the FSM option is designed to provide students with a foundational understanding of food science through courses in the food science core, as well as executive management skills gained through courses in the management core.

Plant Health Management (PHM): To meet an expanding demand for plant health management specialists to promote food security and food safety on a global scale, the PHM option is designed to provide students with a foundational understanding of the essential components of plant protection through courses in the plant health management core, as well as a basic understanding of market aspects of the business through courses in the management core.

STUDENT LEARNING OUTCOMES

1a. Expand breadth of knowledge and expertise in agricultural disciplines and closely related fields.

1b. Increase depth of knowledge and expertise in agriculture as related to the student’s professional goals.

1c. Enhance ability to adapt to emerging changes in technology, economics, societal influences, and communication that have a dramatic impact on the agricultural industry.

2a. Develop critical thinking skills and ability to assess and comprehend societal problems, stakeholder concerns and scientific questions that formulate major issues to be addressed through applied and/or basic research.

2b. Develop scientific literacy by independently assessing, interpreting, and summarizing literature and other sources of knowledge on the research topic.

2c. Develop research objectives, research question and/or hypothesis through the use of logic and critical thinking.

2d. Develop hypothesis; propose, evaluate or execute experimental protocol regarding stated hypothesis, or develop a clearly defined project topic with a plan for investigation and evaluation of collected data.

2e. Collect, summarize, and interpret data.

2f. Effectively communicate at different levels the results of research in written, graphic, and verbal modes.

3a. Acquire advanced knowledge and skills necessary to function as an effective leader, manager, or team player.
3b. Identify, assess and address the interactions among the many issues associated with agriculture and society at large.

3c. Foster commitment to ethical behavior and appreciation for diversity, global cultures, traditions and perspectives.
Option-specific Objectives

**Food Science and Management (FSM):** To address the demand for managers who understand both research and economic factors affecting food production, the FSM option is designed to provide students with a foundational understanding of food science through courses in the food science core, as well as executive management skills gained through courses in the management core.

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**STUDENT LEARNING OUTCOMES**

1a. Expand breadth of knowledge and expertise in agricultural disciplines and closely related fields.

1b. Increase depth of knowledge and expertise in agriculture as related to the student’s professional goals.

1c. Enhance ability to adapt to emerging changes in technology, economics, societal influences, and communication that have a dramatic impact on the agricultural industry.

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### Assessment Plan

<table>
<thead>
<tr>
<th>Learning Outcome</th>
<th>Data</th>
<th>Source</th>
<th>Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1a.</strong> Expand breadth of knowledge and expertise in agriculture disciplines and closely related fields.</td>
<td>• Acceptable performance in core coursework; acceptable performance in overall coursework on the program of study</td>
<td>←GPA in courses on Program of Study</td>
<td>Average grade ≥ 3.0 (B) Cum GPA ≥ 3.0 (B)</td>
</tr>
<tr>
<td><strong>1b.</strong> Increase depth of knowledge and expertise in agriculture as related to the student’s professional goals.</td>
<td>• Independent project or thesis, and final exam</td>
<td>←Exam ballots/rubric</td>
<td>Competent</td>
</tr>
<tr>
<td><strong>1c.</strong> Enhance ability to adapt to emerging changes in technology, the economy, management, and communication that have a dramatic impact on the agricultural industry.</td>
<td>• Admission/Exit Survey</td>
<td>←Academic Coordinator</td>
<td>Self-evaluation</td>
</tr>
<tr>
<td><strong>2a.</strong> Develop critical thinking skills and ability to assess and comprehend societal problems, stakeholder concerns and scientific questions that formulate major issues to be addressed through applied and/or basic research.</td>
<td>• AGRI 587 and STAT 412/512 or other core courses</td>
<td>←GPA in core courses</td>
<td>Average grade ≥ 3.0 (B)</td>
</tr>
<tr>
<td><strong>2b.</strong> Develop scientific literacy by independently assessing, interpreting, and summarizing literature and other sources of knowledge on the research topic.</td>
<td>• Annual review</td>
<td>←Faculty feedback</td>
<td>Satisfactory</td>
</tr>
<tr>
<td><strong>2c.</strong> Develop research objectives and hypotheses through the use of logic and critical thinking.</td>
<td>• Independent project or thesis, and final exam</td>
<td>←Exam ballots/rubric</td>
<td>Competent</td>
</tr>
<tr>
<td><strong>2d.</strong> Develop hypothesis; propose, evaluate or execute experimental protocol regarding stated hypothesis, or develop a clearly defined project topic with a plan for investigation and evaluation of collected data.</td>
<td>• Admission/Exit survey</td>
<td>←Academic Coordinator</td>
<td>Self-evaluation</td>
</tr>
<tr>
<td><strong>2e.</strong> Collect, summarize, and interpret data.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2f.</strong> Effectively communicate at different levels the results of research in written, graphic, and verbal modes.</td>
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<td></td>
<td></td>
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</tbody>
</table>
3a. Acquire advanced knowledge and skills necessary to function as an effective leader, manager, or team player.

3b. Identify, assess and address the interactions among the many issues associated with agriculture and society at large.

3c. Foster commitment to ethical behavior and appreciation for diversity, global cultures, traditions and perspectives.

Data Collection Summary:

<table>
<thead>
<tr>
<th>Required data to be collected</th>
<th>When collected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term and/or cumulative GPA</td>
<td>Annually</td>
</tr>
<tr>
<td>Annual progress evaluations (from Major advisor)</td>
<td>Annually</td>
</tr>
<tr>
<td>Performance in Core Courses (Agri 587 and Stat 412 or 512 or other)</td>
<td>Annually</td>
</tr>
<tr>
<td>Final exam (Exam rubric by advisory committee)</td>
<td>After exam</td>
</tr>
<tr>
<td>Admissions/Exit survey (from Academic Coordinator)</td>
<td>Entry/Completion of program</td>
</tr>
<tr>
<td>Exit Interview (from Director)</td>
<td>Completion of program</td>
</tr>
<tr>
<td>Admissions, retention, and placement data</td>
<td>via Graduate School reporting</td>
</tr>
</tbody>
</table>

Summary: Responsibility for data collection, analysis, and reporting

The Johnson Hall Graduate Center Academic Coordinator will provide data to the MSAG director to evaluate and prepare the necessary reports as required.

Attachments:

- MSAG Final Examination Assessment Rubric
- MSAG Admission Survey
- MSAG Exit Survey
<table>
<thead>
<tr>
<th>Outcome</th>
<th>Strong (4)</th>
<th>Competent (3)</th>
<th>Developing (2)</th>
<th>Weak (1)</th>
<th>Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a. Demonstrates breadth of knowledge and expertise in the agricultural discipline and closely related fields</td>
<td>( ) Reflects optimal knowledge…</td>
<td>( ) Reflects thorough knowledge…</td>
<td>( ) Reflects basic knowledge…</td>
<td>( ) Reflects minimal knowledge…</td>
<td></td>
</tr>
<tr>
<td>1b. Demonstrates increased depth of knowledge and expertise in agricultural disciplines as related to the student’s professional goals</td>
<td>( ) Reflects optimal knowledge…</td>
<td>( ) Reflects thorough knowledge…</td>
<td>( ) Reflects basic knowledge…</td>
<td>( ) Reflects minimal knowledge…</td>
<td></td>
</tr>
<tr>
<td>1c. Demonstrates enhanced ability to adapt to emerging changes in technology, the economy, management, and communication that have a dramatic impact on the agricultural industry.</td>
<td>( ) Reflects excellent ability…</td>
<td>( ) Reflects good ability…</td>
<td>( ) Reflects adequate ability…</td>
<td>( ) Reflects minimal ability…</td>
<td></td>
</tr>
<tr>
<td>2a. Demonstrates critical thinking skills and ability to assess and comprehend societal problems, stakeholder concerns, and scientific questions that formulate major issues to be addressed through applied and/or basic research.</td>
<td>( ) Provides optimal examples of critical thinking, understanding, assessment and reflective evaluation</td>
<td>( ) Provides specific examples of critical thinking, understanding, assessment and reflective evaluation</td>
<td>( ) Provides general examples of critical thinking, understanding, assessment and reflective evaluation</td>
<td>( ) Provides minimal examples of critical thinking, understanding, assessment and reflective evaluation</td>
<td></td>
</tr>
<tr>
<td>2b. Demonstrates scientific literacy by independently assessing, interpreting, and summarizing literature and other sources of knowledge on the research topic.</td>
<td>( ) Provides optimal review of the literature relevant to the study:</td>
<td>( ) Provides moderate review of the literature relevant to the study</td>
<td>( ) Provides adequate review of the literature relevant to the study</td>
<td>( ) Provides inadequate review of the literature relevant to the study</td>
<td></td>
</tr>
</tbody>
</table>

More questions on the reverse >>>
<table>
<thead>
<tr>
<th>Outcome</th>
<th>Strong (4)</th>
<th>Competent (3)</th>
<th>Developing (2)</th>
<th>Weak (1)</th>
<th>Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>2c. Demonstrates ability to develop research objectives, research question and/or hypothesis through the use of logic and critical thinking.</td>
<td>( ) Research questions/hypotheses very well developed and very clearly stated</td>
<td>( ) Research questions/hypotheses satisfactorily developed and stated</td>
<td>( ) Research questions/hypotheses mostly clear and stated</td>
<td>( ) Research questions/hypotheses overall inadequate</td>
<td></td>
</tr>
<tr>
<td>2d. Demonstrates ability to propose, evaluate or execute experimental protocol regarding stated hypothesis, or develop a clearly defined project topic with a plan for investigation and evaluation of collected data.</td>
<td>( ) Research/project design highly consistent with the question(s) being addressed, and optimally completed</td>
<td>( ) Research/project design appropriate with the question(s) being addressed, and satisfactorily completed</td>
<td>( ) Research/project design questionable with the question(s) being addressed, and adequately completed</td>
<td>( ) Research/project design inadequate with the question(s) being addressed, and unsatisfactory in completion</td>
<td></td>
</tr>
<tr>
<td>2e. Demonstrates competency in the collection, analyses and interpretation of data.</td>
<td>( ) Standards of data collection, analysis, and interpretation are complete and thoroughly developed</td>
<td>( ) Standards of data collection, analysis, and interpretation are mostly complete and developed</td>
<td>( ) Standards of data collection, analysis, and interpretation are somewhat incomplete or underdeveloped</td>
<td>( ) Standards of data collection, analysis, and interpretation are significantly incomplete or underdeveloped</td>
<td></td>
</tr>
<tr>
<td>2f. Demonstrates effective communication at different levels the results of research in graphic, and verbal modes</td>
<td>( ) Presentation is excellent, compelling and sustains interest, well-rehearsed and professional</td>
<td>( ) Presentation is good, generally maintained audience interest, reasonably rehearsed, and generally professional</td>
<td>( ) Presentation is fair, often failed to maintain audience interest, minimally rehearsed, and somewhat unprofessional</td>
<td>( ) Presentation is poor, fraught with errors that distract listeners, dull, unrehearsed, or unprofessional</td>
<td></td>
</tr>
<tr>
<td>2f. Demonstrates effective communication at different levels the results of research in written mode</td>
<td>( ) Thesis/report is clearly written in a professional manner, with few spelling or grammatical errors</td>
<td>( ) Thesis/report is generally written in a professional manner, with occasional spelling or grammatical errors</td>
<td>( ) Thesis/report is not consistently written in a professional manner, with many spelling or grammatical errors</td>
<td>( ) Thesis/report is written in an unprofessional manner, with frequent or substantial spelling or grammatical errors</td>
<td></td>
</tr>
</tbody>
</table>

Comments:

Turn rubrics in to Lisa Lujan, Johnson Hall Graduate Center Rm 131, llujan@wsu.edu
Washington State University

Master of Science in Agriculture (MSAG) Admission Survey

The purpose of this survey is to gather information for the College of Agricultural, Human, and Natural Resource Sciences; providing this information will assist the program in helping you accomplish the Student Learning Outcomes and your professional goals in the program. In order to determine your level of proficiency as you enter the program, we request a self-examination of your level of performance for each student learning outcome. You will also be evaluated on these by your advisor and committee members upon completion of the program. Be assured that your response has no impact on your final evaluation or grades throughout the program. We simply want to determine your proficiency/purpose as you enter the program, and later—your growth/accomplishment at program completion.

Check which MSAG plan you are pursuing:

( ) General Agriculture
( ) Food Science and Management Option
( ) Plant Health Management Option

Part 1: Background

1. Are you currently employed in the agricultural/food science field: ( ) Yes  ( ) No

2. Indicate your current professional status by selecting one of the categories:
   ( ) Industry Professional
   ( ) Grower/Rancher
   ( ) Education – Secondary
   ( ) Education – Community College
   ( ) Education - University
   ( ) Cooperative Extension
   ( ) Other ____________________________

3. How many years of experience do you have:
   ( ) 0 yrs  ( ) 1-5 yrs  ( ) 6-10 yrs  ( ) 11-14 yrs  ( ) 15 or more yrs
4. What is your primary objective for entering the Master of Science in Agriculture degree program?

Part 2: Student Learning Outcomes Self-Assessment Survey

1. The program aims to prepare students to be outstanding experts, educators, or practitioners in professional fields related to agriculture.
   a. Describe your breadth of knowledge and expertise in agricultural disciplines and closely related fields?
      ( ) Weak  ( ) Developing  ( ) Competent  ( ) Strong
   b. Describe your depth of knowledge and expertise in agriculture as related to your professional goals?
      ( ) Weak  ( ) Developing  ( ) Competent  ( ) Strong
   c. Describe your ability to adapt to emerging changes in technology, economics, societal influences, and communication that have a dramatic impact on the agricultural industry?
      ( ) Weak  ( ) Developing  ( ) Competent  ( ) Strong

2. The program aims to help prepare students to be successful educators or practitioners in agricultural disciplines.
   a. Describe your critical thinking skills and ability to assess and comprehend societal problems, stakeholder concerns and scientific questions that formulate major issues to be addressed through applied and/or basic research?
      ( ) Weak  ( ) Developing  ( ) Competent  ( ) Strong
   b. Describe your scientific literacy in independently assessing, interpreting, and summarizing literature and other sources of knowledge on the research topic?
      ( ) Weak  ( ) Developing  ( ) Competent  ( ) Strong
   c. Describe our ability to develop research objectives, research question and/or hypotheses through the use of logic and critical thinking?
      ( ) Weak  ( ) Developing  ( ) Competent  ( ) Strong
   d. Describe your ability to propose, evaluate or execute experimental protocol regarding stated hypothesis, or develop a clearly defined project topic with a plan for investigation and evaluation of collected data?
      ( ) Weak  ( ) Developing  ( ) Competent  ( ) Strong
   e. Describe your ability to collect, summarize, and interpret data?
      ( ) Weak  ( ) Developing  ( ) Competent  ( ) Strong
   f. Describe your ability to effectively communicate at different levels the results of research in written, graphic, and verbal modes?
      ( ) Weak  ( ) Developing  ( ) Competent  ( ) Strong

June, 2017
Washington State University

Master of Science in Agriculture (MSAG) Exit Survey

The purpose of this survey to evaluate your growth in your program. This evaluation will guide the College of Agricultural, Human, and Natural Resource Sciences toward program improvement. In order to determine your level of proficiency at the completion of your program, we are again requesting a self-examination of your level of performance for each student learning outcome.

Congratulations on your accomplishment! Please check which MSAG plan have you completed:

(  ) General Agriculture
(  ) Food Science and Management Option
(  ) Plant Health Management Option

Student Learning Outcomes Self-Assessment Survey

1. The program aims to prepare students to be outstanding experts, educators, or practitioners in professional fields related to agriculture.
   a. Describe your breadth of knowledge and expertise in agricultural disciplines and closely related fields?
      (  ) Weak    (  ) Developing    (  ) Competent    (  ) Strong

      What area(s) of the program helped you attain this level of competency:

   b. Describe your depth of knowledge and expertise in agriculture as related to the your professional goals?
      (  ) Weak    (  ) Developing    (  ) Competent    (  ) Strong

      What area(s) of the program helped you attain this level of competency:

   c. Describe your ability to adapt to emerging changes in technology, economics, societal influences, and communication that have a dramatic impact on the agricultural industry?
      (  ) Weak    (  ) Developing    (  ) Competent    (  ) Strong

      What area(s) of the program helped you attain this level of competency:
Overall, do you feel the program supported your growth and provided valuable learning opportunities toward the knowledge required to be an expert, educator, or practitioner in professional fields related to agriculture? Please comment.

2. The program aims to help prepare students to be successful educators or practitioners in agricultural disciplines.
   a. Describe your critical thinking skills and ability to assess and comprehend societal problems, stakeholder concerns and scientific questions that formulate major issues to be addressed through applied and/or basic research?
      ( ) Weak    ( ) Developing    ( ) Competent    ( ) Strong
      What area(s) of the program helped you attain this level of competency:

   b. Describe your scientific literacy in independently assessing, interpreting, and summarizing literature and other sources of knowledge on the research topic?
      ( ) Weak    ( ) Developing    ( ) Competent    ( ) Strong
      What area(s) of the program helped you attain this level of competency:

   c. Describe our ability to develop research objectives, research question and/or hypotheses through the use of logic and critical thinking?
      ( ) Weak    ( ) Developing    ( ) Competent    ( ) Strong
      What area(s) of the program helped you attain this level of competency:

   d. Describe your ability to propose, evaluate or execute experimental protocol regarding stated hypothesis, or develop a clearly defined project topic with a plan for investigation and evaluation of collected data?
      ( ) Weak    ( ) Developing    ( ) Competent    ( ) Strong
      What area(s) of the program helped you attain this level of competency:
e. Describe your ability to collect, summarize, and interpret data?
   ( ) Weak   ( ) Developing   ( ) Competent   ( ) Strong
   What area(s) of the program helped you attain this level of competency:
   
   f. Describe your ability to effectively communicate at different levels the results of research in written, graphic, and verbal modes?
   ( ) Weak   ( ) Developing   ( ) Competent   ( ) Strong
   What area(s) of the program helped you attain this level of competency:
   
   Overall, do you feel you the program provided or enhanced your skills to be a successful educator or practitioner in agricultural science and/or related fields? Please comment.

   Overall, do you feel the program enhanced your ability to be an outstanding leader/team player in collaborative and interdisciplinary application of expertise to address local, regional, national and/or global problems associated with agriculture? Please comment.
Overall, do you feel the program provided you a pathway for manifesting your career objectives? Please comment.

Both your admission and exit surveys will be shared with the MSAG director as a discussion guide for your exit interview. We hope you enjoyed your education and experience in the MSAG program at Washington State University.