# Program Overview

Based on a multidisciplinary approach, the Master of Science (M.S.) degree with a major in Integrated Agricultural Sciences will expose students to the breadth of agriculture, and provide opportunities for them to integrate what they learn across different courses. Students will be able to enhance their depth of knowledge in the focus area of their choice: agricultural business, economics and policy; agricultural education; animal science; or crop and soil science. Graduates will develop a 21st century expertise with theoretical and practical skills necessary to analyze, optimize, and apply their knowledge to complex agro-systems. The rigorous interdisciplinary agriculture curriculum will provide exposure to real-world applications, for students to develop technical and leadership skills necessary for an effective career in addressing and solving food and agricultural issues. Each student's degree will culminate in either thesis-based research or in a non-thesis professional paper.

- completed online application
- $55 nonrefundable application fee

  or

- $90 nonrefundable application fee for applications with international credentials
- baccalaureate degree in agriculture, biology, chemistry, economics, education, or a closely related field from a regionally accredited university. The degree earned should indicate the ability to conduct and complete the thesis research proposed or the non-thesis program with excellent results. (Non-U.S. degrees must be equivalent to a four-year U.S. Bachelor's degree. In most cases, three-year degrees are not considered. Visit our International FAQs (https://www.gradcollege.txst.edu/international/faqs.html) for more information.)
- official transcripts from **each institution** where course credit was granted
- a 3.0 overall GPA or a 3.0 GPA in the last 60 hours of undergraduate course work (plus any completed graduate courses)
- resume/CV detailing prior work experience, research experience, awards, scholarships, and other related qualifications
- statement of interest (two-page maximum) including research interests, plans for graduate study, and professional aspirations and describing how the student's scholarly interests and relevant skills can be utilized in the program to pursue those goals
- three letters of recommendation from non-related individuals familiar with the student's scholarly work and/or relevant work experience

**Approved English Proficiency Exam Scores**

Applicants are required to submit an approved English proficiency exam score that meets the minimum program requirements below unless they have earned a bachelor's degree or higher from a regionally accredited U.S. institution or the equivalent from a country on our exempt countries list (http://www.gradcollege.txstate.edu/international/language.html#waiver).

- official TOEFL iBT scores required with a 78 overall and minimum individual module scores of
  - 19 listening
  - 19 reading
  - 19 speaking
  - 18 writing
- official PTE scores required with a 52 overall
- official IELTS (academic) scores required with a 6.5 overall and minimum individual module scores of 6.0
- official Duolingo scores required with a 110 overall
- official TOEFL Essentials scores required with an 8.5 overall

This program does **not** offer admission if the scores above are not met.

**Additional Information:** You will be required to take leveling courses if you lack sufficient background course work. Any required leveling course work must be completed with grades of B or better. Contact the graduate advisor for information regarding the background course work that may be required.

# Degree Requirements

The Master of Science (M.S.) degree with a major in Integrated Agricultural Sciences requires 36 semester credit hours, including a thesis. The major and supportive courses are to be taken with the advice and consent of the student's advisory committee, which consists of three or more faculty selected in consultation with the graduate advisor.

Non-credit (leveling) course work may be required prior to admission into the program if the student lacks sufficient background course work. Any required leveling course work must be completed with grades of B or better prior to admission.

# Course Requirements

| Code | Title | Hours |
|---|---|---|
| **Required Courses** | | |
| AG 5300 | Applied Statistics and Econometrics for Agriculture | 3 |
| or MATH 5376E | Analysis of Variance | |
| AG 5310 | Research Methods in Integrated Agricultural Sciences | 3 |
| **Elective** | | |
| Choose 3 hours from the following: | | 3 |
| AG 5301 | Agricultural Development and Policy | |
| AG 5324 | Agroecology and Integrated Agriculture | |
| AG 5350 | Foundations of Ethics and Leadership in Agriculture | |
| AG 5365 | The Role of Animal Science in Society: An Integrated Approach | |
| **Prescribed Electives** | | |
| Choose 21 hours from the following: | | 21 |
| AG 5101 | Research Experience | |
| Agricultural Business, Economic and Policy Research Area: | | |
| AG 5302 | Economics of Agricultural Production | |
| AG 5303 | Agricultural Marketing and Price Analysis | |
| AG 5304 | Economics of Sustainable Natural Resource Management | |
| ANLY 5335 | Forecasting and Simulation | |
| Crops and Soils Research Area: | | |
| AG 5120 | Aquaponic Internship | |
| AG 5320 | Integrated Agricultural Production in Aquaponic Systems | |

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|---|---|---|
| AG 5323 | Composting and Integrated Resource Management | |
| AG 5426 | Soil Health and Development | |
| BIO 5412 | Plant Anatomy | |
| GEO 5415 | Geographic Applications of Remote Sensing | |
| TECH 5382 | Industrial Ecology and Sustainability Engineering | |
| Agriculture Education and Leadership Research Area: | | |
| AG 5351 | Grant Development and Management | |
| AG 5352 | Program Development and Evaluation | |
| AG 5354 | Instructional Design in Agricultural Education | |
| AG 5355 | Methods of Technological Change | |
| ADED 5382 | Foundations of Adult Education | |
| SOCI 5309 | Seminar in Qualitative Research Methods | |
| Animal Science Research Area: | | |
| AG 5361 | Food Technology and Meat Science | |
| AG 5362 | Advanced Animal Science: Minerals and Vitamins in Animal Nutrition | |
| AG 5364 | Biology of Reproduction in Farm Animals | |
| AG 5463 | Animal Molecular Genetics | |
| BIO 5413 | Parasitology | |
| Agricultural Sustainability Research Area: | | |
| AG 5304 | Economics of Sustainable Natural Resource Management | |
| AG 5323 | Composting and Integrated Resource Management | |
| AG 5370 | Special Problems in Technical Agriculture | |
| AG 5426 | Soil Health and Development | |
| GEO 5313 | Environmental Studies | |
| GEO 5334 | Applied Water Resources | |
| MCS 5342 | Sustainable Consumer Economy | |
| SOCI 5368 | Seminar in Environmental Sociology | |
| **Thesis** | | |
| AG 5399A | Thesis | 3 |
| Choose a minimum of 3 hours from the following: | | 3 |
| AG 5199B | Thesis | |
| AG 5299B | Thesis | |
| AG 5399B | Thesis | |
| AG 5599B | Thesis | |
| AG 5999B | Thesis | |
| **Total Hours** | | **36** |

# Comprehensive Examination Requirement

All thesis students must pass an oral comprehensive examination to demonstrate they have mastered the main concepts covered in their courses and research activities. The comprehensive exam is comprised of questions based on research methods, statistics, and theory, and that also incorporate empirical research and coursework from a student's area(s) of specialization. Immediately following their thesis oral defense, each student will undertake the oral comprehensive exam as administered by the student's thesis committee. Students should consult their graduate advisor and the Graduate Handbook for the M.S program in Integrated Agricultural Sciences for a detailed description of the comprehensive examination procedures. If a student fails the comprehensive examination, they will be allowed to retake it. If a student fails a second time, they may petition the Integrated Agricultural Sciences steering committee for permission to take the examination a third time. Students will not be allowed to take an examination more than three times.

Students who do not successfully complete the requirements for the degree within the timelines specified will be dismissed from the program.

If a student elects to follow the thesis option for the degree, a committee to direct the written thesis will be established. The thesis must demonstrate the student's capability for research and independent thought. Preparation of the thesis must be in conformity with the *Graduate College Guide to Preparing and Submitting a Thesis or Dissertation*.

# Thesis Proposal (http://www.gradcollege.txstate.edu/docs/Thesis_Diss_Guide.pdf)

The student must submit an official Thesis Proposal Form (http://www.gradcollege.txstate.edu/forms.html) and proposal to his or her thesis committee. Thesis proposals vary by department and discipline. Please see your department for proposal guidelines and requirements. After signing the form and obtaining committee members' signatures, the graduate advisor's signature if required by the program and the department chair's signature, the student must submit the Thesis Proposal Form with one copy of the proposal attached to the dean of The Graduate College for approval before proceeding with research on the thesis. If the thesis research involves human subjects, the student must obtain exemption or approval from the Texas State Institutional Review Board prior to submitting the proposal form to The Graduate College. The IRB approval letter should be included with the proposal form. If the thesis research involves vertebrate animals, the proposal form must include the Texas State IACUC approval code. It is recommended that the thesis proposal form be submitted to the dean of The Graduate College by the end of the student's enrollment in 5399A. Failure to submit the thesis proposal in a timely fashion may result in delayed graduation.

# Thesis Committee

The thesis committee must be composed of a minimum of three approved graduate faculty members.

# Thesis Enrollment and Credit

The completion of a minimum of six hours of thesis enrollment is required. For a student's initial thesis course enrollment, the student will need to register for thesis course number 5399A. After that, the student will enroll in thesis B courses, in each subsequent semester until the thesis is defended with the department and approved by The Graduate College. Preliminary discussions regarding the selection of a topic and assignment to a research supervisor will not require enrollment for the thesis course.

Students must be enrolled in thesis credits if they are receiving supervision and/or are using university resources related to their thesis work. The number of thesis credit hours students enroll in must reflect the amount of work being done on the thesis that semester. It is the responsibility of the committee chair to ensure that students are making adequate progress toward their degree throughout the thesis process. Failure to register for the thesis course during a term in which supervision is received may result in postponement of graduation. After initial enrollment in 5399A, the student will continue to enroll in a thesis B course as long as it takes to complete the thesis. Thesis projects are by

definition original and individualized projects. As such, depending on the topic, methodology, and other factors, some projects may take longer than others to complete. If the thesis requires work beyond the minimum number of thesis credits needed for the degree, the student may enroll in additional thesis credits at the committee chair's discretion. In the rare case when a student has not previously enrolled in thesis and plans to work on and complete the thesis in one term, the student will enroll in both 5399A and 5399B.

The only grades assigned for thesis courses are PR (progress), CR (credit), W (withdrew), and F (failing). If acceptable progress is not being made in a thesis course, the instructor may issue a grade of F. If the student is making acceptable progress, a grade of PR is assigned until the thesis is completed. The minimum number of hours of thesis credit ("CR") will be awarded only after the thesis has been both approved by The Graduate College and released to Alkek Library.

A student who has selected the thesis option must be registered for the thesis course during the term or Summer I (during the summer, the thesis course runs ten weeks for both sessions) in which the degree will be conferred.

# Thesis Deadlines and Approval Process

Thesis deadlines are posted on The Graduate College (http://www.gradcollege.txstate.edu/) website under "Current Students." The completed thesis must be submitted to the chair of the thesis committee on or before the deadlines listed on The Graduate College website.

The following must be submitted to The Graduate College by the thesis deadline listed on The Graduate College website:

1. The Thesis Submission Approval Form bearing original (wet) and/or electronic signatures of the student and all committee members.
2. One (1) PDF of the thesis in final form, approved by all committee members, uploaded in the online Vireo submission system.

After the dean of The Graduate College approves the thesis, Alkek Library will harvest the document from the Vireo submission system for publishing in the Digital Collections database (according to the student's embargo selection). **NOTE: MFA Creative Writing theses will have a permanent embargo and will never be published to Digital Collections.**

While original (wet) signatures are preferred, there may be situations as determined by the chair of the committee in which obtaining original signatures is inefficient or has the potential to delay the student's progress. In those situations, the following methods of signing are acceptable:

- signing and faxing the form
- signing, scanning, and emailing the form
- notifying the department in an email from their university's or institution's email account that the committee chair can sign the form on their behalf
- electronically signing the form using the university's licensed signature platform.

If this process results in more than one document with signatures, all documents need to be submitted to The Graduate College together.

No copies are required to be submitted to Alkek Library. However, the library will bind copies submitted that the student wants bound for personal use. Personal copies are not required to be printed on archival quality paper. The student will take the personal copies to Alkek Library and pay the binding fee for personal copies.

## Agriculture (AG)

**AG 5100. Professional Development.**
This course introduces key concepts and practices for teaching college courses. It provides regular in-service training and planned periodic evaluations of instructional responsibilities. It is required for first-year teaching and instructional assistants in the Master's of Science in Integrated Agricultural Sciences. Graded on a credit (CR), no-credit (F) basis.
**1 Credit Hour. 1 Lecture Contact Hour. 0 Lab Contact Hours.**
**Course Attribute(s):** Exclude from 3-peat Processing|Graduate Assistantship|Exclude from Graduate GPA
**Grade Mode:** Leveling/Assistantships

**AG 5101. Research Experience.**
This course provides students with an opportunity to explore a focused research topic. Ideally the topic would be an emergent topic within their research area that was unplanned and resulted from their initial investigation. May be repeated twice for credit.
**1 Credit Hour. 1 Lecture Contact Hour. 0 Lab Contact Hours.**
**Course Attribute(s):** Exclude from 3-peat Processing
**Grade Mode:** Standard Letter

**AG 5120. Aquaponic Internship.**
This course provides students with hands-on production experience in aquaculture. Students will complete 64 hours of internship with an aquaponic facility.
**1 Credit Hour. 0 Lecture Contact Hours. 1 Lab Contact Hour.**
**Grade Mode:** Standard Letter

**AG 5199B. Thesis.**
This course represents a student's continuing thesis enrollment. The student continues to enroll in this course until the thesis is submitted for binding. Graded on a credit (CR), progress (PR), no-credit (F) basis.
**1 Credit Hour. 1 Lecture Contact Hour. 0 Lab Contact Hours.**
**Course Attribute(s):** Exclude from 3-peat Processing
**Grade Mode:** Credit/No Credit

**AG 5299B. Thesis.**
This course represents a student's continuing thesis enrollment. The student continues to enroll in this course until the thesis is submitted for binding. Graded on a credit (CR), progress (PR), no-credit (F) basis.
**2 Credit Hours. 2 Lecture Contact Hours. 0 Lab Contact Hours.**
**Course Attribute(s):** Exclude from 3-peat Processing
**Grade Mode:** Credit/No Credit

**AG 5300. Applied Statistics and Econometrics for Agriculture.**
This course focuses on data analysis, modeling techniques and their applications with statistical inference for agriculture. This course will cover statistical tools applied in agriculture, including probability, sampling, principles of estimation, hypothesis testing, general linear models, multiple regression analysis, qualitative response modeling, and other related tools widely used in agriculture.
**3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.**
**Grade Mode:** Standard Letter

**AG 5301. Agricultural Development and Policy.**
This course focuses on current issues that integrate agricultural policy, resource development, application of welfare criteria and economic analysis, and food and rural development problems of the U.S. and