## New Proposal

Date Submitted: 12/12/24 12:12 pm

Viewing: : **Engineering Technology and Management for Agricultural Systems, Ph.D.**

Last edit: 03/26/25 3:17 pm

Changes proposed by: Kent Rausch

### In Workflow

1. **U Program Review**
2. **1741 Committee Chair**
3. **1741 Head**
4. **KL Committee Chair**
5. **KL Dean**
6. **University Librarian**
7. **Grad_College**
8. **COTE Programs**
9. **Provost**
10. **Senate EPC**
11. Senate
12. U Senate Conf
13. Board of Trustees
14. IBHE
15. HLC
16. DOE
17. DMI

### Approval Path

1. 12/16/24 9:57 am
   Donna Butler
   (dbutler): Approved
   for U Program
   Review
2. 12/16/24 10:10 am
   Kent Rausch
   (krausch): Approved
   for 1741 Committee
   Chair
3. 12/16/24 10:23 am
   Ronaldo Maghirang
   (ronaldom):
   Approved for 1741
   Head
4. 02/11/25 9:23 am

Brianna Gregg (bjgray2): Approved for KL Committee Chair

5. 02/11/25 3:54 pm Anna Ball (aball): Approved for KL Dean

6. 02/11/25 4:00 pm Tom Teper (tteper): Approved for University Librarian

7. 03/12/25 3:36 pm Allison McKinney (agrindly): Approved for Grad_College

8. 03/12/25 3:54 pm Suzanne Lee (suzannel): Approved for COTE Programs

9. 03/19/25 3:06 pm Brooke Newell (bsnewell): Approved for Provost

# Proposal Type

Proposal Type:          Major (ex. Special Education)

# Administration Details

| | |
|---|---|
| Official Program Name | Engineering Technology and Management for Agricultural Systems, Ph.D. |
| Diploma Title | Doctor of Philosophy in Engineering Technology and Management for Agricultural Systems |
| Sponsor College | Agr, Consumer, & Env Sciences |
| Sponsor Department | Agricultural & Biological Engr |

| Sponsor Name | Ronaldo Maghirang | | |
|---|---|---|---|
| Sponsor Email | ronaldom@illinois.edu | | |
| College Contact | Brianna Gregg | College Contact Email | |
| | bjgray2@illinois.edu | | |
| College Budget Officer | Nick Unser | | |
| College Budget Officer Email | nicku@illinois.edu | | |

If additional stakeholders other than the Sponsor and College Contacts listed above should be contacted if questions during the review process arise, please list them here.

Kent Rausch, krausch@illinois.edu

Does this program have inter-departmental administration?

No

## Effective Catalog Term

| Effective Catalog Term | Fall 2025 |
|---|---|
| Effective Catalog | 2025-2026 |

## Proposal Title

Proposal Title (either Establish/Revise/Eliminate the Degree Name in Program Name in the College of XXXX, i.e., Establish the Bachelor of Science in Entomology in the College of Liberal Arts and Sciences, include the Graduate College for Grad Programs)

Establish the Doctor of Philosophy in Engineering Technology and Management for Agricultural Systems in the College of Agricultural, Consumer and Environmental Sciences and the Graduate College

Does this proposal have any related proposals that will also be revised at this time and the programs depend on each other? Consider Majors, Minors, Concentrations & Joint Programs in your department. Please know that this information is used administratively to move related proposals through workflow efficiently and together as needed. Format your response like the following "This BS proposal (key 567) is related to the Concentration A proposal (key 145)"

## Program Justification

Provide a brief justification of the program, including highlights of the program objectives, and the careers, occupations, or further educational opportunities for which the program will prepare graduates, when appropriate.

The proposed PhD program in Engineering Technology and Management for Agricultural Systems (ETMAS) addresses the growing demand for advanced expertise in emerging agricultural technologies such as robotics, automation, artificial intelligence, industrial biotechnology, and data analytics.

The program objectives are to: (1) prepare future faculty, researchers, and technology service providers for disciplines at the intersection of technology and food and agricultural systems, (2) provide interdisciplinary education and research experience in engineering technology for food and agricultural systems, (3) develop holistic problem-solving skills for food and agricultural systems and strategies for managing technology implementation in agriculture.

This thesis-based program emphasizes generating and publishing new knowledge in engineering technology management for agricultural systems. Graduates will be prepared for academic positions (teaching, research, Extension), research roles in industry and government, leadership positions in the food and agricultural industry, and public service and research in various organizations (i.e., federal, state, nonprofit, private).

The ETMAS PhD program is distinct from related fields through its unique focus and approach. It emphasizes systems and applications. The program's research components applies a diverse set of tools, including statistics, data science, and various data collection methods. This combination allows students to tackle complex, real-world challenges at the intersection of technology and agriculture. Moreover, the program's scope is inherently interdisciplinary, fostering a comprehensive understanding of technology management within agricultural systems. This holistic approach enables graduates to navigate the multifaceted challenges and opportunities in modern agriculture, setting them apart in both academic and industry settings.

In contrast, the ABE PhD program concentrates on advancing fundamental science and engineering topics, with a rigorous foundation in mathematics, computer modeling, and engineering principles.

As BS, MS, and MS-PSM programs in ETMAS expand, the PhD program will meet the increasing demand for experts in this specialized field. Graduates will have a competitive edge in roles that bridge technology and agriculture across academia, industry, and the public sector.

## Instructional Resources

Will there be any reduction in other course offerings, programs or concentrations by your department as a result of this new program/proposed change?

No

Does this new program/proposed change result in the replacement of another program?

No

Does the program include other courses/subjects outside of the sponsoring department impacted by the creation/revision of this program? If Yes is selected, indicate the appropriate courses and attach the letter of support/acknowledgement.

Yes

Courses outside of the sponsoring department/interdisciplinary departments:

CPSC 541 - Regression Analysis

CPSC 543 - Appl. Multivariate Statistics

PSYC 581 - Applied Regression Analysis

PSYC 587 - Hierarchical Linear Models

EPSY 480 - Educational Statistics

STAT 420 - Methods of Applied Statistics

CPSC 540 - Applied Statistical Methods II

EPSY 403 - Res Methods in Learning Scienc

ABE 445 - Statistical Methods

Please attach any letters of support/acknowledgement for any Instructional Resources. Consider faculty, students, and/or other impacted units as appropriate.

ETMAS PhD - EPSY.pdf

ETMAS PhD - CPSC Approval.pdf

ETMAS PhD - STAT.pdf

ETMAS PhD - PSYC.pdf

ANSC Approval for cross-listed ABE course.pdf

# Program Features

| | |
|---|---|
| Academic Level | Graduate |
| Does this major have transcripted concentrations? | No |

What is the longest/maximum time to completion of this program?

4 years

What are the minimum Total Credit Hours required for this program?

96

What is the
required GPA?                3.0

CIP Code                    140301 - Agricultural Engineering.

Is this program part of an ISBE approved licensure program?

        No

Will specialized accreditation be sought for this program?

    No

Describe the institution's plan for seeking specialized accreditation for this program. Indicate if there is no specialized accreditation for this program or if it is not applicable.

    No specialized accreditation.

If this program prepares graduates for entry into a career or profession that is regulated by the State of Illinois, describe how it is aligned with or meets licensure, certification, and/or entitlement requirements.

    None.

Does this program prepare graduates for entry into a career or profession that is regulated by the State of Illinois?

    No

# Program of Study

Attach Program of Study related       ETMAS PhD side by side 20241211.xlsx
information here.

## Catalog Page Text - Overview Tab

Catalog Page Overview Text
                The degree of Doctor of Philosophy is primarily a research degree requiring from three to four
                years of graduate study beyond the master's degree or five to six years for students admitted
                directly with a bachelor's degree. The major area of specialization integrates courses and
                research that are closely related in content, though courses may be drawn from multiple
                departments. Students work with their advisor and research committee to create a focused
                plan of study in their primary area, complemented by approved electives. To graduate,
                candidates must demonstrate their capacity for independent research by completing an
                original dissertation on a topic within the major field of study and successfully pass both
                preliminary and final examinations.

Statement for

**ETMAS Ph.D. Curriculum with approved MS degree**

| | | |
|---|---|---|
| ABE 501 | Graduate Seminar: Foundations of Success | 1 |
| ABE 502 | Graduate Seminar: Advanced Career Skills | 1 |
| ABE 503 | Graduate Seminar: Integrity, Teaching and Research | 1 |
| ABE 501, 502 and 503 are not required if taken for the ETMAS MS | | |
| **Choose one course in statistics or data analytics:** | | |
| ABE 445 | Statistical Methods | 4 |
| CPSC 541 | Regression Analysis | 4 |
| CPSC 543 | Appl. Multivariate Statistics | 4 |
| PSYC 581 | Applied Regression Analysis | 4 |
| PSYC 587 | Hierarchical Linear Models | 4 |
| EPSY 480 | Educational Statistics | 4 |
| STAT 420 | Methods of Applied Statistics | 4 |
| **One course in research methods including experimental design** | | |
| CPSC 540 | Applied Statistical Methods II | 4 |
| EPSY 403 | Research Methods in Learning Sciences | 4 |
| Required course subtotal: | | 11 |
| Elective courses - chosen in consultation with advisor; one of the courses must be 500-level (subject to Other Requirements and Conditions below) | | 10 |
| Subtotal for course credit hours: | | At least 21 |
| ETMA 599 | Thesis Research | Up to 43 |
| **Total Hours** | | **64** |

**Other Requirements**

| |
|---|
| Other Requirements and Conditions may overlap |
| One 500-level course (at least 3 credit hours) must be formal coursework, not seminar courses, special topics or independent study |

A maximum of 4 hours of ETMA 597 (or other independent study) may be applied toward the elective course work requirement

Teaching experience determined in consultation with advisor with department guidelines

The minimum program GPA is 3.0

**Ph.D. exam and dissertation requirements:**

Preliminary Exam

Final Exam or Dissertation Defense

Dissertation Deposit

**Direct PhD in ETMAS - with approved BS degree**

| | | |
|---|---|---|
| ABE 501 | Graduate Seminar: Foundations of Success | 1 |
| ABE 502 | Graduate Seminar: Advanced Career Skills | 1 |
| ABE 503 | Graduate Seminar: Integrity, Teaching and Research | 1 |
| ABE 501, 502 and 503 are not required if taken for the ETMAS MS | | |
| Choose one course in statistics or data analysis: | | 4 |
| ABE 445 | Statistical Methods | 4 |
| CPSC 541 | Regression Analysis | 4 |
| CPSC 543 | Appl. Multivariate Statistics | 4 |
| PSYC 581 | Applied Regression Analysis | 4 |
| PSYC 587 | Hierarchical Linear Models | 4 |
| EPSY 480 | Educational Statistics | 4 |
| STAT 420 | Methods of Applied Statistics | 4 |
| Choose one course in research methods including experimental design: | | 4 |
| CPSC 540 | Applied Statistical Methods II | 4 |
| EPSY 403 | Research Methods in Learning Sciences | 4 |
| In addition to above 2 courses in stats and research methods, the student is required to take one more course from any of the three areas (stats, data analysis or research methods) above | | 4 |
| Required course subtotal: | | 15 |
| Elective courses - chosen in consultation with advisor, at least two courses are 500-level (subject to Other Requirements and Conditions below) | | 27 |
| Subtotal for course credit hours: | | At least 42 |

| | | |
|---|---|---|
| [ETMA 599](#) | Thesis Research | Up to 54 |
| **Total Hours** | | **96** |

## Other Requirements

| |
|---|
| Other Requirements and Conditions may overlap |
| Two 500-level courses (at least 3 credit hours each) must be formal coursework, not seminar courses, special topics or independent study |
| A maximum of 8 hours of ETMA 597 (or other independent study) may be applied toward the elective course work requirement |
| Teaching experience determined in consultation with advisor with departmental guidelines |
| The minimum program GPA is 3.0 |
| **Ph.D. exam and dissertation requirements:** |
| Qualifying requirements review in the 2nd year: It is required to complete all courses in stats, data analysis and research methods by the 3rd semester with a 3.25 or higher GPA |
| Preliminary Exam |
| Final Exam or Dissertation Defense |
| Dissertation Deposit |

Corresponding Degree        PhD Doctor of Philosophy

# Program Regulation and Assessment

## Plan to Assess and Improve Student Learning

*Illinois Administrative Code: 1050.30(b)(1)(D) Provision is made for guidance and counseling of students, evaluations of student performance, continuous monitoring of progress of students toward their degree objectives and appropriate academic record keeping.*

Student Learning Outcomes

The PhD program in Engineering Technology and Management for Agricultural Systems (ETMAS) prepares graduates to make significant contributions to the field through research, innovation, and leadership. Students completing the program will demonstrate mastery of advanced concepts in engineering technology as applied to agricultural systems, while conducting independent research that generates new knowledge in the field. Through their doctoral studies, they will develop the ability to design and implement rigorous research methodologies, create innovative solutions to complex agricultural challenges, and effectively communicate their findings to diverse stakeholders.

Specifically, upon completing the program, students will demonstrate:

1. Advanced knowledge and research capabilities in engineering technology and management for agricultural systems

2. Proficiency in research design and execution, applying appropriate methodologies and advanced data analysis to agricultural technology and management challenges

3. An ability to develop and validate innovative solutions that integrate engineering technology, systems approaches, and management principles for agricultural systems

4. Effective communication of research findings through scholarly writing and presentations to agricultural technology and management stakeholders

5. Responsible conduct in research while considering technological, managerial, economic, and societal implications

6. Commitment to professional growth and adaptation to emerging technologies and management practices in agricultural systems

Describe how, when, and where these learning outcomes will be assessed.

Describe here:

The program employs a comprehensive assessment strategy at key stages of the student's academic journey. The primary assessment points are the preliminary examination (typically conducted in years 2-3), annual progress reviews, and the final dissertation defense. Each assessment provides opportunities to evaluate student progress and provide constructive feedback for improvement.

During the preliminary examination, students demonstrate their mastery of fundamental concepts and research capabilities through a written research proposal and oral examination. The examining committee evaluates the student's readiness to conduct independent research using standardized rubrics that address each learning outcome.

Annual progress reviews provide regular checkpoints for monitoring student development. These reviews include written progress reports, advisor evaluations, and documentation of professional development activities. This ongoing assessment allows for timely identification of areas needing improvement and appropriate intervention strategies.

The final examination (dissertation defense) serves as the culminating assessment, where students demonstrate their mastery of all learning outcomes through their written dissertation and oral defense. The dissertation committee evaluates both the quality of the research contribution and the student's overall development as a researcher and professional in the field.

Identify faculty expectations for students' achievement of each of the stated student learning outcomes. What score, rating, or level of expertise will signify that students have met each outcome? Provide rating rubrics as necessary.

Faculty employ a five-point rating scale (from 1-Unsatisfactory to 5-Outstanding) to evaluate student achievement of learning outcomes. Students must meet minimum performance thresholds at each assessment point to progress in the program. For preliminary examinations, students must achieve at least "Meets Expectations" (3) on all outcomes. The final dissertation defense requires "Exceeds Expectations" (4) on research-related outcomes and at least "Meets Expectations" on all others.

Explain the process that will be implemented to ensure that assessment results are used to improve student learning.

Following the preliminary examination and dissertation defense, students receive detailed feedback on their performance. Advisors discuss strengths and weaknesses with students, and when necessary, the examining committee recommends specific actions for improvement. This individual-level feedback ensures students receive the support needed to develop their capabilities fully.

At the program level, the Graduate Committee conducts biennial reviews of assessment data to identify trends and areas for improvement. This review encompasses aggregate student performance, assessment tool effectiveness, and feedback from faculty and students. The Committee prepares a comprehensive report summarizing findings and recommending program enhancements. These recommendations are presented to the faculty for review and approval, with approved changes implemented and monitored in subsequent assessment cycles.

Through this structured yet flexible assessment process, the program maintains high standards while continuously adapting to meet the evolving needs of students and the field of engineering technology and management for agricultural systems.

Program Description and Requirements Attach Documents

## Delivery Method

This program is available:

On Campus - Students are required to be on campus, they may take some online courses.

## Admission Requirements

Desired Effective Admissions Term      Fall 2025

Provide a brief narrative description of the admission requirements for this program. Where relevant, include information about licensure requirements, student background checks, GRE and TOEFL scores, and admission requirements for transfer students.

Admission to the Ph.D. program in ETMAS is contingent upon the satisfactory completion of an MS degree in Engineering Technology and Management for Agricultural Systems or other Engineering, Technology, or Sciences programs with an overall GPA of 3.0 or higher. Each applicant whose native language is not English is required to submit the results of an accepted test as evidence of English proficiency unless they qualify for an exemption. The Graduate Record Examination (GRE) is optional.

Admission to the Direct PhD program in ETMAS will require applicants to have a bachelor's degree in ETMAS or an equivalent bachelor's degree (Engineering, Technology or Science) from an accredited institution whose requirements for the bachelor's degree are substantially equivalent to those of the ETMAS BS at the University of Illinois. Applicants must hold at least a 3.50 or higher GPA to be considered for admission. Under exceptional circumstances, the Graduate Committee can approve a petition to admit outstanding applicants with a GPA lower than 3.50, (but higher than 3.25) to the Direct PhD program. The Graduate Record Examination (GRE) is optional.

All applicants whose native language is not English must have a minimum TOEFL score of 88 (iBT), 230 (CBT), or 570 (PBT); or minimum International English Language Testing System (IELTS) academic exam scores of 6.5 overall and 6.0 in all subsections. Applicants may be exempt from the TOEFL if certain criteria are met. For those taking the TOEFL or IELTS, full admission status is granted for scores greater than 102 (TOEFL iBT), 253 (TOEFL CBT), 610 (TOEFL PBT), or 6.5 (IELTS). Limited status is granted for lesser scores and requires enrollment in English as a Second Language (ESL) courses based on an ESL Placement Test (EPT) taken upon arrival to campus.

# Enrollment

Number of Students in Program (estimate)

| Year One Estimate | 3 | 5th Year Estimate (or when fully implemented) |
| | | 10 |

Estimated Annual Number of Degrees Awarded

| Year One Estimate | 0 | 5th Year Estimate (or when fully implemented) |
| | | 5 |

What is the
matriculation term

for this program?

Fall

# Budget

Will the program or revision require staffing (faculty, advisors, etc.) beyond what is currently available?

No

Additional Budget
Information

Attach File(s)

# Financial Resources

How does the unit intend to financially support this proposal?

Instruction will be from existing courses in the department or offered on campus. No new courses will be needed to support this program.

Will the unit need to seek campus or other external resources?

No

Attach letters of
support

What tuition rate do you expect to charge for this program? e.g, Undergraduate Base Tuition, or Engineering Differential, or Social Work Online (no dollar amounts necessary)

Graduate Base Tuition

Is this program requesting self-supporting status?

No

# IBHE

What is the specific title of the proposed degree program as it would be listed in the IBHE Program Inventory? The name should be what typically is used for similar programs nationally. Provide a short description of the program, including highlights of the program objectives, and the careers, occupations, or further educational opportunities for which the program will prepare graduates.

PhD, Engineering Technology and Management for Agricultural Systems

This doctoral program addresses the critical need for advanced expertise in agricultural technology systems through integrated study of engineering technology management and agricultural applications. The curriculum combines rigorous coursework in engineering technology, management principles, data analytics, and research methodologies with original research in agricultural technology systems.

Program objectives prepare graduates to: advance fundamental knowledge through research in agricultural technology systems, develop and implement emerging agricultural technologies, lead technology adoption initiatives, and train future professionals in the field. The program emphasizes both theoretical understanding and practical application of technology management in agricultural contexts.

Career opportunities include positions as university faculty, research scientists, technology development leaders, and senior technical managers. Graduates are prepared for roles in academic institutions, agricultural technology companies, research organizations, government agencies, and agricultural industries, particularly in positions requiring expertise in both technical innovation and implementation strategy.

## Institutional Context

**University of Illinois at Urbana-Champaign**

**Describe the historical and university context of the program's development. Include a short summary of any existing program(s) upon which this program will be built.**

Explain the nature and degree of overlap with existing programs and, if such overlap exists, document consultation with the impacted program's home department(s).

The proposed PhD program in Engineering Technology and Management for Agricultural Systems (ETMAS) builds upon the well-established undergraduate and Masters ETMAS programs in our department. It represents the next step in our academic progression, following our undergraduate program (evolved from Agricultural Mechanization and Technical Systems Management (TSM) programs) and our master's degree programs.

Our current programs demonstrate strong and growing demand. Fall 2024 enrollment data shows 158 students in the BS program, which was recently enhanced with four specialized concentrations. Our MS thesis and non-thesis programs, though newer, have already attracted 14 students, indicating clear interest in advanced study in this field.

Two factors demonstrate the need for this PhD program: First, several current MS students and alumni have specifically expressed interest in pursuing doctoral studies in ETMAS at Illinois. Second, there is a documented shortage of individuals with advanced degrees in this field to fill positions in academia and industry leadership roles.

This program fills a unique niche at Illinois, with no direct overlap with existing doctoral programs. While it shares some foundational elements with other engineering and agricultural programs, its specific focus on engineering technology management for agricultural systems is distinct.

# University of Illinois

Briefly describe how this program will support the University's mission, focus and/or current priorities. Demonstrate the program's consistency with and centrality to that mission.

The ETMAS PhD program aligns with ongoing campus and college initiatives to address challenges in food and agricultural systems. As technology advances, these innovations can be applied to agriculturally-centered problems which require management skills as well as rigorous research approaches.

The program supports the Campus Strategic Plan in two key ways. First, it addresses Goal II (Provide transformative learning experiences) by providing research-based, integrative learning experiences that offer transformative learning opportunities. Second, it contributes to Goal III (Make a significant visible societal impact) by preparing students to meet the demands for interdisciplinary researchers, thus making a significant and visible societal impact. ETMAS graduate students will have opportunities to collaborate with researchers across the College of ACES, Veterinary Medicine, and the Grainger College of Engineering to address problems in their research.

Discuss projected future employment and/or additional educational opportunities for graduates of this program. Compare estimated demand with the estimated supply of graduates from this program and existing similar programs in the state. Where appropriate, provide documentation by citing data from such sources as employer surveys, current labor market analyses, and future workforce projections. (Whenever possible, use state and national labor data, such as that from the Illinois Department of Employment Security at http://lmi.ides.state.il.us/ and/or the U.S. Bureau for Labor Statistics at http://www.bls.gov/).

While specific labor market data is not currently available, the PhD in ETMAS is positioned to meet growing demands in several key areas:

Academia: As our BS, MS, and MS-PSM degree programs in ETMAS grow at Illinois and other institutions, there is an increasing need for PhD-trained graduates to fill teaching and research positions. This program will help address the relative shortage of advanced degree holders in the ETMAS area.

Research and Development: The advancing technologies in agricultural systems, including robotics, automation, artificial intelligence, and data analytics, create opportunities for PhD graduates in both public and private sector research roles.

Industry Leadership: As agricultural technologies become more complex, industries will require leaders with advanced knowledge in both the technical and management aspects of these systems.

Public Sector and Non-Profit Organizations: Graduates will be prepared for roles in governmental and non-governmental organizations focusing on agricultural technology policy, implementation, and assessment.

Consultancy and Entrepreneurship: The interdisciplinary nature of the program prepares graduates to offer expert consultancy services or start innovative businesses at the intersection of technology and agriculture.

The program's focus on cutting-edge technologies and their application in agricultural systems positions graduates to be competitive in an evolving job market. The current interest from ETMAS Masters students and alumni in pursuing an ETMAS PhD at Illinois also indicates a demand for this advanced degree.

As the program develops, we will collect and analyze data on job placements and career trajectories of our graduates to provide more specific information on employment outcomes and opportunities.

What resources will be provided to assist students with job placement?

The College of ACES Placement Office facilitates and supports graduates to form connections between employers and job seekers. They use the platform Handshake@Illinois to notify students of job and internship opportunities. They also have on-campus employment interviews and many programs to help students prepare for those interviews. Those programs include mock interviews, resume and cover letter reviews, and workshops to aid students during each step of the recruitment process. They also host regular career services career fairs at the ACES Library or the Illini Union.

If letters of support
are available attach
them here:

## Comparable Programs in Illinois

Identify similar programs and sponsoring institutions in the state, at both public and private colleges and universities. Compare the proposed program with these programs, and discuss its potential impact upon them. Provide complete responses, do not reference website links.

There are no graduate programs in the state of Illinois at the PhD level that offer degrees related to our ETMAS program.

Comparable
Programs in Illinois
Attach Documents

## A Thriving Illinois: Higher Education Paths to Equity, Sustainability, and Growth

IBHE is charged to develop a strategic plan to address the present and future aims and needs and requirements of higher education in Illinois (110 ILCS 205/6) (from Ch. 144, par. 186) Sec. 6). Illinois Administrative Code:

1050.30(a)(6): A) The unit of instruction, research or public service is educationally and economically justified based on the educational priorities and needs of the citizens of Illinois Respond to the following questions about how the proposed program will support the three goals of A Thriving Illinois: Higher Education Paths to Equity, Sustainability, and Growth Strategic Plan.

## Equity

Describe institutional-level plans to close equity gaps in access, progression, completion, and attainment and the implications for the proposed program. More specifically, provide institutional-level plans for attracting, recruiting, retaining, and completing a diverse group of students including working adults, students of color, transfer and low-income students and implications for the proposed program. Explain how progress will be monitored.

The University of Illinois System recognizes the significance of bridging equity gaps among its citizens in order to fulfill its mission. The University of Illinois actively works to address equity disparities among individuals throughout Illinois, both in urban and rural areas.

A Thriving Illinois, Equity Strategy #2: These are strategies set forth by the IBHE to attain equitable access to higher education. See ibhestrategicplan.ibhe.org/SP_Equity_Strategies.html. Pursuant to these goals, the UI System's Access 2030 Strategic Plan aims to increase the number of graduates from underrepresented groups by 50 percent by the end of the decade. This initiative encompasses students from disadvantaged backgrounds, including those from ethnic and racial minorities, rural areas, and urban communities. It reinforces the University of Illinois' commitment to serving the public good by ensuring that no communities are left behind while striving to improve life in the state. Additionally, it builds upon existing efforts to foster opportunities for individuals of all backgrounds in Illinois.

Scholarships: The university also supports underrepresented groups and underrepresented counties through the President's Award Program (PAP), totalling over $15 million / yr. PAP scholarships are given for $5000/yr up to 4 years, and the PAP Honors program scholarships are $10000/yr for 4 yrs. Both provide assistance to students from underrepresented groups across the UI System.

Student recruitment and retention: The University of Illinois runs the Salute to Academic Achievement (SAA). SAA invites students from underrepresented groups and counties to the college-fair event according to their GPA, test scores, and high school nominations. Participants meet with college, admissions, financial aid, and housing representatives from universities in the UI System. They further receive application fee waivers for UI system universities. In 2021, approximately 4600 students were invited and over 10% attended.

The University of Illinois Urbana-Champaign also has outreach and recruitment programs specifically designed for historically underrepresented minority students, including Discover Illinois and Días de Visita en Español.

The university actively participates in several other student retention initiatives. As part of the American Talent Initiative (ATI) the University of Illinois Urbana-Champaign has set the following goals: 1. increase the six-year graduation rate for Pell students to 81% for the 2017 entering cohort; 2. increase targeted opportunities for incoming students to participate in summer scholar/bridge programming in an attempt to increase the number of Pell students enrolling, improve retention rates, and reduce graduate rate gaps for this population.

As part of the Association of Public and Land Grant Universities Powered by Publics (APLU PxP)

both to increase graduation rates and expand access to education for all students. The goals of APLU PxP are to produce several hundred thousand more degrees by 2025; to eliminate the achievement gap for low-income, minority, and first-generation students; and to expand access to higher education for students from all backgrounds. One hundred thirty (130) universities and state systems participate in 16 transformation "clusters."

UIUC leads the Big Ten Academic Alliance (BTAA), which studies trends in retention and barriers faced by students. In addition to student retention, the BTAA tracks course "DFW" (D grades, F grades, and Withdrawals) to understand and address specific bottlenecks (across institutions) in student success. UIUC is using the results to identify courses where additional support is needed for students. For example, BTAA institutions shared information on DF grades in the first semester. The graduation gap between students who had one D/F grade in their first semester vs. those with no DF grades was 19.9%; the gap for those with multiple D/F grades was 47.3%.

The Student Success Initiative (SSI) at UIUC aims to enhance student success through improved access, equity, and overall experience. Goals include increasing access, reducing costs, and providing financial aid. It also strives to close equity gaps by improving retention and graduation rates for underrepresented students. The SSI promotes inclusive campus programs and support services, organizes events like the Student Success Symposium, and implements projects like the Mental Health Working Group and Faculty and Staff Mental Health Ambassador Program. It addresses COVID-related learning loss and streamlines the Learning Management System. In the upcoming year, the SSI will focus on enhancing first-year and transfer student experiences, increasing access for underrepresented students, and providing professional development for faculty to ensure quality outcomes.

The Morrill Engineering Program is to empower African American, Hispanic, and Native American engineering students, support their success as scholars, and enable them to leverage a community of students, staff, and alumni to achieve excellence in engineering. The MEP program hosts a variety of activities throughout the year to enhance the student experience.

Office of the Vice Chancellor for Diversity, Equity, and Inclusion (OVCDEI): The University of Illinois Urbana-Champaign (UIUC) has a strong focus on diversity, equity, and inclusion. The OVCDEI leads these efforts, impacting students, faculty, and staff. Student-focused programming sets the tone for equity strategies. A campus-wide climate assessment will be launched in the 2022-2023 academic year to gauge students' sense of safety, acceptance, and value. The university collaborates with external organizations, peer institutions, and the Association of American Universities (AAU) to ensure the assessment is comprehensive and benchmarked against peers.

Chancellor's Call to Action to Address Racism and Social Injustice: UIUC is committed to equity through the Call-to-Action program which has funded 22 selected proposals in 17 departments, for approximately $2 million annually.

for approximately $2 million annually.

College, Department, and Program-level plans

The Department of Agricultural and Biological Engineering recognizes the importance of diversity in gender, ethnicity, sexual orientation, disability status, national origin, religion, and socio-economic status. We understand that diverse talent is a strategic asset that allows for more effective research and teaching. We believe in a scientific culture that aspires to the highest standards of professionalism, promotes psychological safety and encourages respect for others, so everyone can bring their best creative selves to the department.

The Department of Agricultural and Biological Engineering aims to create an inclusive and discrimination-free environment for all. A recent National Academies report highlighted challenges related to sexual harassment and faculty accountability within the science and engineering community. To address these issues, the department plans to establish a community-based approach through continuous feedback, advocacy, and proactive policies. Initiatives to improve climate and diversity include setting workplace expectations, conducting faculty workshops on personnel management, establishing a Program Climate Review Committee, and discussion of mental health, anti-racism policies, and sexual harassment training in syllabi and courses. Our students benefit from several services and opportunities within the department and the College of ACES.

Describe program and institution-based high-impact practices and wrap-around student support services ensuring equitable access and success for students enrolled in the proposed program.

The pandemic had a disproportionate impact on students from low-income and minority families, amplifying existing challenges in higher education. To help students regain their pre-pandemic learning trajectory, the IBHE recommends extending learning opportunities, providing proactive advising, and offering wrap-around supports are also essential. High-impact practices, tailored for underrepresented minority students, such as service learning, research opportunities, and internships, contribute to student success and retention. Additional wrap-around support (those provided by an extended team of professionals like family, health workers, teachers, financial advisors, etc.) are also important components.

The University of Illinois Urbana-Champaign takes pride in its leadership on high-impact practices and services for students. These support practices foster ongoing learning renewal and the implementation of evidence-based approaches, aligning with Equity Strategy #1 of A Thriving Illinois. Students have access to resources such as the Counseling Center, Office of the Dean of Students, McKinley Health Center, and Student Assistance Center, which are available in-person or remotely to promote student wellness and retention. The Writer's Workshop offers workshops and writing assistants to assist all students with their writing projects. Disability Resources & Educational Services (DRES) has also played a significant role in supporting students with disabilities, contributing to the university's reputation as a national leader in post-secondary education for individuals with disabilities. DRES is responsible for

numerous innovations:

• The first architectural accessibility standards that later became the American National Standards Institute Standards;

• The first wheelchair-accessible fixed route bus system;

• The first accessible university residence halls;

• The first university service fraternity and advocacy group for students with disabilities, Delta Sigma Omicron; and

• The first university to receive the Barrier-Free America Award from the Paralyzed Veterans of America (2012).

The Counseling Center, McKinley Health Center, and Student Assistance Center are easily accessible to all students, whether in-person or remotely, to enhance student well-being and retention. Students are encouraged to participate in Writer's Workshop activities, and writing assistants are available to provide support on course projects. These services, in combination with DRES, have helped to establish Urbana-Champaign as the leader in post-secondary education for individuals with disabilities.

The Office of Inclusion and Intercultural Relations (OIIR) offers several programs aimed at supporting diverse student groups, including working adults, students of color, and transfer and low-income students. OIIR is home to UIUC's cultural and resource centers, as well as various impactful programs. Three examples of these programs are the 100 STRONG Program, I-Connect Diversity & Inclusion Workshops, and Housing Division Social Justice and Leadership Education. Appendix C provides a more comprehensive list of programs, including those specifically designed for African American and Latino/a students. The Chez Veterans Center, located within the College of Applied Health Sciences, provides support for veterans, including personalized academic and career coaching, mentoring opportunities, and health and wellness services to enhance overall well-being.

The Office of Minority Student Affairs (OMSA) at the University of Illinois Urbana-Champaign is a long-standing and extensive student support program that reflects the university's commitment to its land-grant mission. OMSA has been dedicated to promoting access for all students and offering a wide range of college preparatory and support services to enhance student success since its establishment. OMSA's programs, such as AMPS (Academic Mentoring, Programs, and Services), align with Equity Strategy #8 of A Thriving Illinois by incorporating near-peer mentoring and staff as mentors/coaches.

Explain institutional strategies being implemented to increase and retain faculty, staff, and administrators of color and the implications for the proposed program. Explain how progress will be monitored.

100 students have successfully completed the summer bridge experience, resulting in 93.5% retention from freshman to sophomore year. This retention rate surpasses the campus average of 91.5% for underrepresented minority students.

The Public Voices Fellowship is a yearlong program open to tenured faculty to join a cohort of leaders, the majority of whom will be underrepresented (including women) and provide them with extraordinary support, leadership skills, and the Access 2030 initiative to increase the number of faculty leaders from the greater public occupation.

The initiative seeks to close equity gaps from K-12 through college, building on the universities' previous efforts that have already increased enrollment of underrepresented students. The University System is making strategic investments in faculty recruitment to uphold our academic strengths, address student needs, and seize new opportunities. These investments are particularly important in the competitive market for top talent. The Next 150 strategic plan includes an initiative to expand our faculty in key areas over the next five years. The hiring initiative was hindered by the COVID-19 pandemic, but the university remains committed to its efforts to hire diverse faculty.

Specific hiring decisions are largely left to departments and colleges, but the campus has allocated significant resources to encourage diversity in the hiring process. Two prominent programs in this regard are the Targets of Opportunity Program (TOP) and the Dual Career Academic Couples (DCAC) program. The TOP program offers ongoing financial support in the form of salary funds to facilitate the recruitment of faculty who enhance campus diversity, with a specific focus on underrepresented groups and women in STEM fields. These hires are typically identified through conventional search processes, but faculty search committees must document their efforts to reach and interview diverse applicants. Additionally, the Office of the Provost, in collaboration with the Office of the Vice Chancellor for Diversity, Equity, and Inclusion, recently introduced a temporary modification to the TOP program to foster the recruitment of more faculty of color. This initiative has made an additional approximate sum of $1 million available to units to support hiring efforts in this specific area. For the DCAC program, the Provost provides recurring matching funds equivalent to one-third of the initial salary if the partner is hired into a tenure track position through the DCAC program. The DCAC program was recently extended to include non-recurring funds for partner hires in non-tenure track positions.

The Provost's Underrepresented Faculty Recruitment Program offers non-recurring research funds to strengthen employment offers. For individuals hired during the 2022-2023 academic year, grants of up to $20,000 per year were available for each of the first three years of employment. The Provost's Office allocates funds to cover supplementary search expenses when candidates from underrepresented groups visit campus.

The Office of the Provost is also investing in faculty development. Starting from recruitment and onboarding, all the way through promotion and retirement, faculty members are provided

Describe strategies and initiatives the institution plans to implement that makes the proposed program and college more generally affordable for students and their families, including those who have been historically underserved

The department graduate program for Engineering Technology and Management for Agricultural Systems (ETMAS) provides a number of features which complement college and university efforts to improve accessibility and affordability for students and their families, including those who have been historically underserved. In many cases, students working to complete their PhD program in ETMAS will be supported through research funds and tuition waivers.

The program elements have impact both for attracting students to UIUC and for retaining the students, keeping them on a path for a successful degree experience.

A series of Graduate Seminars was recently developed to prepare all graduate students in the department to achieve their career goals. This three-course seminar series is offered so that students can develop a sense of community during their degree program and thus be encourage and supported toward degree completion. As part of this series, students are updated regarding fellowship opportunities.

college, department, and program-level efforts to recruit and retain faculty, staff, and administrators of color.

Provide tuition cost analysis for comparable programs and institutions in Illinois.

The ETMAS PhD program is unique to the University of Illinois in the ABE department. There are no comparable programs or institutions in Illinois.

Agricultural and Biological Engineering, as well as faculty and staff involved in the Engineering Technology and Management for Agricultural Systems programs, has fully embraced the University emphasis on efforts to hire diverse faculty and staff. Each search committee includes a specific diversity advocate. The diversity advocate ensures that all committee members are aware of best practices and that all members have completed the DiversityEdu program within three years of the search. The Diversity Advocate also helps to shape the position advertisement strategy to reach a diverse pool of qualified applicants. Finally, the diversity advocate ensures...

**Growth**

Provide a supply and demand analysis for the proposed program that advertise the posts in the following to Provide evidence of student interest...

b) Identifies and provides evidence of a high quality...

The proposed ETMAS PhD program is multidisciplinary. As the program evolves... students pursuing a PhD in a STEM discipline... ETMAS programs distinguish engineering technology and management graduates with a PhD. As is often recent. Faculty and specialized training as a research driven group, and students and employers often ask about availability of PhD graduates from the same program.

(b) The proposed ETMAS PhD program is equivalent in scholarly rigor as our PhD program in ABE. Employers look to the reputation of the University of Illinois as a Research 1 institution to provide PhD graduates for industry, academia and federal agencies.

Explain how the program engaged with business and industry in its development and how it will spur the state's economy by leveraging partnerships with local, regional, and state industry, business leaders and employers.

The University of Illinois Urbana-Champaign has strong partnerships with business and industry through the Discovery Partners Institute (DPI) and the Illinois Innovation Network (IIN). DPI's Tech Talent Lab and immersion programs engage students with Chicago's technology workforce, fostering connections with regional employers, research teams, nonprofits, and startups. The university-industry links promote employment and talent retention in the area. IIN enhances the student experience through short-term boot camps focused on essential topics like artificial intelligence, data science, and entrepreneurship, cultivating interest and providing a solid foundation for future studies in these areas.

The Research Park offers industry-focused research and internships. It employs 800 year-round interns, allowing UIUC undergraduate and graduate students to work part-time on campus while remaining full-time students. It hosts more student workers than any other peer US university research/tech park. Students receive highly competitive wages for their specialized skills in fields like computer science, data analytics, engineering, business development, and human resources. Many interns are classified as Federal Work-Study participants. Research Park internships enhance employment prospects by expanding professional networks, building portfolios, and developing leadership skills.

Our graduate students in the ETMAS program (MS, PSM and PhD) are a good fit for many opportunities through DPI and the Research Park since ETMAS students have a strong ag-tech focus and expertise which many companies find useful.

Describe how the proposed program will expand access and opportunities for students through high-impact practices including research opportunities, internships, apprenticeships, career pathways, and other field experiences.

Our three-course sequence of ETMA 501, 502, and 503 will equip PhD students to complete their respective research by providing the opportunity to hear more senior graduate students present on their research as well as expose them to professional skills needed for teaching and research. Students in the program will have access to the College of ACES and LAS career fair, Gies College of Business career fair, Grainger College of Engineering career fair, as well as our ABE Department career fair, where employers attend solely to hire ABE and ETMAS students. Most students will also attend the American Society of Agricultural and Biological Engineers (ASABE) International Meeting to present their research, network with colleagues and industry professionals, and visit the ASABE's career fair.

Explain how the proposed program will expand its models of teaching and learning, research, and/or public service and outreach that provide opportunity for students to succeed in the work of the future.

Graduates of the program will have opportunities for employment in academia as well as research-related positions within the agricultural, environmental, safety, and renewable energy industries. Agricultural equipment manufacturers regularly employ research and testing technician positions. This program would train students to manage and direct research and testing programs, allowing them to succeed in those environments.

Beyond workforce need, describe how the program broadly addresses societal needs (e.g., cultural or liberal arts contribution, lifelong learning of Illinois residents, or civic participation).

> Through decreasing food scarcity and hunger, graduates of this program will be making a broader impact on society. As global population continues to grow, management of technological systems will be needed to continue to create higher efficiency and productivity with limited resources. Graduates will be formally trained on cultural competency and the importance of continuing education.

A Thriving Illinois:
Higher Education
Paths to Equity,
Sustainability, and
Growth - Attach
Documents

## Program Description and Requirements

Illinois Administrative Code:

*1050.30(b)(1) A) The caliber and content to the curriculum assure that the objectives of the unit of instruction will be achieved; B) The breadth and depth of the curriculum are consistent with what the title of the unit of instruction implies; C) The admission and graduation requirements for the unit of instruction are consistent with the stated objectives of the unit of instruction.*

*1050.30(b)(3): Appropriate steps shall be taken to assure that professional accreditation needed for licensure or entry into a profession as specified in the objectives of the unit of instruction is maintained or will be granted in a reasonable period of time.*

*1050.50 (a)(2)(C) Requirement for Programs in which State Licensure is Required for Employment in the Field: In the case of a program in which State licensure is required for employment in the field, a program can be found to be in good standing if the institution is able to provide evidence that program graduates are eligible to take the appropriate licensure examination and pass rates are maintained as specified in the objectives of the unit of instruction. If there is no such evidence, the institution shall report the program as flagged for review.*

## Program Description

Provide a description of the proposed program and its curriculum, including a list of the required core courses and short ("catalog") descriptions of each one. (This list should identify all courses newly developed for the program).

Provide Program Description here:

The degree of Doctor of Philosophy, primarily a research degree, requires from three to four years of graduate study beyond the master's degree or with direct admit PhD requires from five and six years past the bachelor's degree. The major area of specialization encompasses courses and research that are closely related, but the courses need not be offered by a single major department. In consultation with their advisor and research committee, students create a focused plan of study in their area and with approved electives from other areas. Candidates must demonstrate a capacity for independent research by preparing an original thesis on a topic within the major field of study and must pass both preliminary and final examinations.

The PhD program will be delivered using a face-to-face modality. Either PhD option requires a total of 96 hours.
If a Masters degree has been obtained previously, the required core courses include:
- Statistics or data analytics, one course
- Research Methods including experimental design, one course
- Elective Courses, at least one at 500 level, 10 hours
- Thesis Research, up to 43 hours

For the Direct PhD Option, with approved BS degree:
- Statistics or data analytics, one course
- Research Methods including experimental design, one course
- Elective Courses, at least two at 500 level, 27 hours
- Thesis Research, up to 54 hours

Attach Program
Description Files if
needed

**Graduation Requirements**

Provide a brief narrative description of all graduation requirements, including, but not limited to, credit hour requirements, and, where relevant, requirements for internship, practicum, or clinical. For a graduate program, summarize information about the requirements for completion of the thesis or dissertation, including the thesis committees, and the final defense of the thesis or dissertation. If a thesis or dissertation is not required in a graduate program, explain how the functional equivalent is achieved.

Either the PhD with Masters or the Direct PhD programs will require 96 hours of credit.

PhD with Masters: Admission to the Ph.D. program in ETMAS is contingent upon the satisfactory completion of a MS degree in Engineering Technology and Management for Agricultural Systems or other Engineering, Technology, or Sciences programs with an overall GPA of 3.0 or higher. Each applicant whose native language is not English is required to submit the results of an accepted test as evidence of English proficiency unless they qualify for an exemption. The Graduate Record Examination (GRE) is optional. Each candidate must pass a preliminary exam and a dissertation defense prior to depositing a dissertation.

Direct PhD: Admission to the Direct PhD program in ETMAS will require applicants to have a bachelor's degree in ETMAS or an equivalent bachelor's degree (Engineering, Technology or Science) from an accredited institution whose requirements for the bachelor's degree are substantially equivalent to those of the University of Illinois. Applicants must hold at least a 3.50 or higher GPA to be considered for admission. Under exceptional circumstances, the Graduate Committee can approve a petition to admit outstanding applicants with a GPA lower than 3.50, (but higher than 3.25) to the Direct PhD program. The Graduate Record Examination (GRE) is optional.

Direct PhD qualifying requirements are reviewed in the 2nd year: Course requirements in stats, data analysis and research methods (9-12 credit hours) must be completed by the end of the 3rd semester with a 3.25 or higher GPA. Students who fail to meet this requirement will be transferred to the MS program. A minimum GPA of 3.25 is required prior to the qualifying exam. A preliminary exam, dissertation defense and dissertation deposit is also required.

## Plan to Evaluate and Improve the Program

Describe the program's evaluation plan.

Learning objectives and student achievement will be regularly assessed as part of departmental and college procedures. During the preliminary exam and dissertation defense, student achievement of the learning outcomes will be assessed as it relates to the program's effectiveness for achieving these outcomes.

Plan to Evaluate and Improve the Program

Attachments

### Budget Narrative

### Fiscal and Personnel Resources

*Illinois Administrative Code: 1050.30(a)(5): A) The financial commitments to support the unit of instruction, research or public service are sufficient to ensure that the faculty and staff and support services necessary to offer the unit of instruction, research or public service can be acquired and maintained; B) Projections of revenues necessary to support the unit of instruction, research or public service are based on supportable estimates of state appropriations, local tax support, student tuition and fees, private gifts, and/or governmental grants and contracts.*

Budget Rationale

Provide financial data that document the university's capacity to implement and sustain the proposed program and describe the program's sources of funding.

Is the unit's (Department, College, School) current budget adequate to support the program when fully implemented? If new resources are to be provided to the unit to support the program, what will be the source(s) of these funds? Is the program requesting new state funds? (During recent years, no new funds have been available from the state (IBHE) to support new degree programs).

> When fully implemented, we anticipate 10-20 PhD students to be enrolled in the program. Existing faculty and resources are adequate to support students in the program.

## Faculty Resources

Will current faculty be adequate to provide instruction for the new program or will additional faculty need to be hired? If additional hires will be made, please elaborate.

> The new program will not add courses offered, and will increase enrollments in existing courses slightly.

Please address the impact on faculty resources including any changes in numbers of faculty, class size, teaching loads, student-faculty ratios, etc.

> Impact on faculty resources is anticipated to be small.

Describe how the unit will support student advising, including job placement and/or admission to advanced studies. Will current staff be adequate to implement and maintain the new program or will additional staff be hired? Will current advising staff be adequate to provide student support and advisement, including job placement and or admission to advanced studies? If additional hires will be made, please elaborate.

> Through thesis and research advisor support, in addition to existing department and College of ACES placement resources, no additional placement resources will be needed to support students in this program.

Are the unit's current facilities adequate to support the program when fully implemented? Will there need to be facility renovation or new construction to house the program?

> Yes, the unit's current facilities are adequate to support the program. No new facilities (located mainly in the Ag Engineering Sciences Building, 1304 W Pennsylvania Ave, Urbana, IL 61801) will be needed due to the addition of this program to our department.

## Library Resources

Describe your proposal's impact on the University Library's resources, collections, and services. If necessary please consult with the appropriate disciplinary specialist within the University Library.

> The proposal team consulted with Mike Dickinson and, based upon their input, determined that the Library's resources, collections, and services are sufficient to meet the needs of the program outlined in this proposal.

Summarize information about library resources for the program, including a list of key textbooks, a list of key text and electronic journals that will support this program, and a short summary of general library resources of the University that will be used by the program's faculty, students, and staff.

> Existing library resources (reference texts and electronic journals) should be sufficient for the proposed program. Other text books will be obtained by the students depending on the course instructor.

Are any sources of funding temporary (e.g., grant funding)? If so, how will the program be sustained once these funds are exhausted?

> No sources of funding are temporary.

If this is a graduate program, please discuss the intended use of graduate tuition waivers. If the program is dependent on the availability of waivers, how will the unit compensate for lost tuition revenue?

> As a new PhD program, our funding strategy builds on our department's substantial research portfolio, demonstrated by our FY24 research expenditures of $7.7M. Our faculty consistently secure major federal grants from USDA, NSF, DOE, and other agencies, along with significant industry partnerships. This strong research base will support most, if not all, of our doctoral students through Graduate Research Assistantships (GRAs) that include full tuition waivers. This commitment to student funding is already demonstrated in our PhD program in Agricultural and Biological Engineering, where all doctoral students receive full tuition waivers, partial fee waivers, and competitive stipends.
>
> The majority of our PhD students will be supported on faculty research grants that include tuition coverage, with some GTA positions offered primarily for teaching experience as part of professional development and helping with our teaching mission. Should tuition waiver availability become constrained, we will adjust admission numbers to match funding capacity, prioritize grants with full tuition support, and work with research partners to ensure sustainable student funding. This approach maintains program quality while providing our PhD students with necessary financial support.

Budget Narrative

Fiscal and
Personnel
Resources
Attachments

## Personnel Budget

| Category | Year One | Year Five | Notes |

### Faculty (FTE)

| Faculty FTE Year1 | Faculty FTE Year 5 | Faculty FTE Notes |
|---|---|---|
| 0 | 0 | NA |

### Faculty ($)

| Faculty Year 1 | Faculty Year 5 | Faculty Notes |
|---|---|---|
| 0 | 0 | NA |

### Advising Staff ($)

| Advising Staff Year 1 | Advising Staff Year 5 | Advising Staff Notes |
|---|---|---|
| 0 | 0 | NA |

### Graduate Students ($)

| Graduate Students Year 1 | Graduate Students Year 5 | Graduate Students Notes |
|---|---|---|
| 0 | 0 | NA |

### Other Personnel Costs

| Other Personnel Costs Year 1 | Other Personnel Costs Year 5 | Other Personnel Costs Notes |
|---|---|---|
| 0 | 0 | NA |

Budget Narrative
Attachments

## Facilities and Equipment

*Illinois Administrative Code: 1050.30(a)(4): A) Facilities, equipment and instructional resources (e.g., laboratory supplies and equipment, instructional materials, computational equipment) necessary to support high quality academic work in the unit of instruction, research or public service are available and maintained;*

Describe the facilities and equipment that are available, or that will be available, to develop and maintain high quality in this program. Summarize information about buildings, classrooms, office space, laboratories and equipment, and other instructional technologies for the program.

> Facilities within the Agricultural and Biological Engineering Department include rain simulation, hydroponics, biological, electronics, engine power and emissions, air quality, and bioprocessing laboratory facilities. ETMAS students also have access to the Integrated Bioprocessing Research Laboratory, an 80-acre ABE Farm Research & Training Center, and the Carl R. Woese Institute for Genomic Biology.

Will the program require new or additional facilities or significant improvements to already existing facilities?

No

Will the program need additional technology beyond what is currently available for the unit?

No

Are there other costs associated with implementing the program?

No

Facilities and Equipment Attachments

## Faculty and Staff

Describe the personnel resources available to develop and maintain a high quality program, including faculty (full- and part-time, current and new), staff (full- and part-time, current and new), and the administrative structure that will be in place to oversee the program. Also include a description of faculty qualifications, the faculty evaluation and reward structure, and student support services that will be provided by faculty and staff.

see attached files

Summarize the major accomplishments of each key faculty member, including research/scholarship, publications, grant awards, honors and awards, etc. Include an abbreviated curriculum vitae or a short description.

see attached files

Faculty and Staff
Attachments
Faculty for ETMAS PhD.xlsx
Support Staff.xlsx

## HLC Section

### Credit Hours

| | | | |
|---|---|---|---|
| Existing or repackaged curricula (Courses from existing inventory of courses): | Number of Credit Hours: | 96 100 | Percent of Total: |
| Revised or redesigned curricula (Courses for which content has been revised for the new program): | Number of Credit Hours: | 0 0 | Percent of Total: |
| New curricula (Courses developed for the new program that have never been offered): | Number of Credit Hours: | 0 0 | Percent of Total: |
| Total Credit Hours of the Program: | Number of Credit Hours: | 96 100 | Percent of Total: |

### New Faculty Required

Will new faculty expertise or new faculty members be needed to launch this program?

No

Please explain existing coverage:  No new faculty members will be required to launch this program.

### Additional Funds

Will the proposed program require a large outlay of additional funds by the institution?

No

## Institutional Funding

Please explain institutional funding for proposed program:

No additional institutional funding is needed for the proposed PhD in ETMAS program.

### EP Documentation

EP Control Number       EP.25.083

Attach Rollback/
Approval Notices

### Non-EP Documentation

U Program Review
Comments

Rollback
Documentation and
Attachment

### DMI Documentation

Attach Final
Approval Notices

Banner/Codebook
Name


Program Code:

| Minor Code | Conc Code | Degree Code | Major Code |
|---|---|---|---|
| | | | |

Senate Approval
Date

Senate Conference
Approval Date

BOT Approval Date

IBHE Approval Date

HLC Approval Date

DOE Approval Date

Effective Date:

Program Reviewer
Comments

**Brooke Newell (bsnewell) (03/17/25 3:42 pm):** Per email discussion with Brianna G, uploaded
ANSC letter of support