

AGRICULTURAL FACULTY MEETING

**Friday, October 16, 2026
9:00 a.m. – 10:00 a.m.
PFEN 241**

1. Call to Order – Dean Bernie Engel
2. Approval of Agenda
3. Agenda – Action Items

Document I – Agricultural Administration – Biotechnology, BS in Indianapolis

4. Other Business

College of Agriculture

Proposed Course and Curricular Changes
(College of Agriculture Undergraduate)

Level and Campus*: Undergraduate-PIN (Purdue Indianapolis Only)

College/School*: College of Agriculture

Department*: Agriculture Administration

If this degree is intended to be a collaboration between multiple colleges, schools or department, please briefly describe the nature of the proposed collaboration.

The B.S. in Biotechnology will be housed in Agricultural Administration within Purdue University's College of Agriculture and administered through the Office of Academic Programs. The program will be a collaborative effort across multiple departments within the College of Agriculture, including Biochemistry, Animal Sciences, Agronomy, Botany and Plant Pathology, Food Science, Forestry and Natural Resources, Horticulture and Landscape Architecture, Entomology, and Agricultural and Biological Engineering. These departments will contribute faculty expertise, courses, laboratory experiences, undergraduate research opportunities, and experiential learning activities that support the biotechnology core and concentration areas. The program will also collaborate with selected Purdue colleges and schools when complementary expertise is needed in areas such as chemistry, biological sciences, pharmacy, veterinary medicine, biomedical engineering, data science, artificial intelligence, and regulatory science. Agricultural Administration will coordinate curriculum development, advising, assessment, industry engagement, and overall program governance, ensuring students benefit from Purdue's strengths in agricultural, animal, food, environmental, health, and industrial biotechnology.

Instructional Modality-What is the primary instructional delivery modality for this proposed academic program? (Select one option based on the maximum percentage of coursework a student can complete via distance education technology)*: On-Campus/Residential (0%-24% Distance Education) All or nearly all coursework is completed in-person at an approved campus location.

Degree Level*: Baccalaureate Degree (BA/BS/BSME)

Proposed Name of the New Degree*: B.S. in Biotechnology

Major Name (if different than degree name): N/A

Estimated Total Credit Hours*: 120 credits

Description of Proposed Offering **Provide a clear description of this proposed offering, including its core academic focus, delivery format and the target student demographic and the career/educational pathways it facilitates. (350 words max)*

The Bachelor of Science in Biotechnology is an interdisciplinary degree housed in Agricultural Administration within Purdue University's College of Agriculture. The program provides students with a strong foundation in biological sciences, chemistry, genetics, molecular biology, microbiology, bioinformatics, biotechnology laboratory methods, data analytics, regulatory science, and biotechnology ethics. The curriculum combines a shared biotechnology core with pathways that allow students to explore applications in green biotechnology (agricultural biotechnology), red biotechnology (animal, medicine, and health biotechnology), and white biotechnology (bioprocessing and biomanufacturing).

The degree will be delivered primarily through an on-campus, residential format with extensive laboratory, research, internship, and experiential learning opportunities. Located in Purdue Indianapolis, the program will leverage proximity to Indiana's thriving life sciences and biotechnology sector, providing students access to industry partnerships, internships, and career-connected learning experiences and will directly support Purdue's One Health Initiative. The curriculum is designed in collaboration with multiple departments across the College of Agriculture.

The program is intended for traditional undergraduate students, transfer students, including graduates of biotechnology-related associate degree programs, and students interested in careers at the intersection of agriculture, human health, environmental sustainability, and advanced manufacturing. Graduates will be prepared for careers in biotechnology research and development, pharmaceuticals, agricultural innovation, animal health, diagnostics, genomics, bioinformatics, food and fermentation biotechnology, biomanufacturing, quality systems, regulatory affairs, and environmental biotechnology. The degree also provides strong preparation for graduate and professional education, including master's degrees, professional science master's programs, veterinary medicine, pharmacy, medicine, public health, and other advanced life science disciplines.

Program Alignment * *Describe how this proposed program aligns with and advances the specific strategic priorities and mission of your Department, College, and/or the University, including unique institutional strengths and priorities this offering leverages (350 words max)*

The Bachelor of Science in Biotechnology directly advances the mission of Purdue University's College of Agriculture, Purdue Indianapolis, and Purdue University as a land-grant institution by preparing graduates to address complex challenges in agriculture, food systems, human and animal health, environmental sustainability, and advanced biomanufacturing. Housed in Agricultural Administration and administered through the Office of Academic Programs, the program reflects Purdue's commitment to integrating teaching, research, extension, workforce development, and industry engagement to create positive societal and economic impact.

The program aligns closely with the College of Agriculture's strategic strengths in agricultural biotechnology, food and fermentation science, animal health, environmental systems, genomics, data science, and biotechnology innovation. It brings together expertise from departments

including Biochemistry, Animal Sciences, Agronomy, Botany and Plant Pathology, Food Science, Entomology, Forestry and Natural Resources, Horticulture and Landscape Architecture, and Agricultural and Biological Engineering to create a unified and interdisciplinary biotechnology pathway. This approach leverages existing academic and research excellence while enhancing collaboration across the College.

The degree also advances Purdue's One Health initiative by integrating human, animal, plant, and environmental health perspectives within a single academic framework. Few universities possess Purdue's breadth of expertise across these interconnected areas, creating a distinctive educational experience that prepares students to address challenges related to food security, biosecurity, sustainability, biotechnology innovation, and public health.

Additionally, the program supports Purdue's strategic growth in Indianapolis by leveraging proximity to one of the nation's leading life sciences and biotechnology ecosystems. Through partnerships with industry, government, and nonprofit organizations, students will engage in internships, research, experiential learning, and workforce development opportunities that connect classroom learning with real-world impact. The program further reinforces Indiana's aspirations to expand its leadership in life sciences, biotechnology, advanced manufacturing, and the broader bioeconomy while positioning Purdue Agriculture as a national leader in biotechnology education and talent development.

Essential Addition Details* *Describe the specific macro-trends (state/regional workforce needs, emerging research paradigms, societal shifts) that make this an essential addition to the portfolio at this exact time. (350 words max)*

The proposed Bachelor of Science in Biotechnology responds to a convergence of economic, scientific, and societal forces that are rapidly reshaping agriculture, life sciences, healthcare, and advanced manufacturing. Biotechnology is increasingly recognized as a strategic driver of innovation in food production, animal health, pharmaceuticals, environmental sustainability, biosecurity, precision medicine, and industrial biomanufacturing. As a result, state and national leaders have identified biotechnology as a critical sector for future economic competitiveness, scientific leadership, and workforce development.

Indiana is uniquely positioned at the center of this growth. The state is home to one of the nation's most significant concentrations of biotechnology, pharmaceutical, agricultural, and animal health companies, including Eli Lilly and Company, Elanco Animal Health, Corteva Agriscience, Roche Diagnostics, and numerous emerging biotechnology firms. Workforce analyses conducted for Purdue Agriculture identified strong demand for biotechnology-related talent across sectors, with Indianapolis serving as the state's largest biotechnology employment hub and bachelor's degrees representing the most commonly requested educational pathway.

Biotechnology-related occupations in Indiana offer wages substantially above the state average and are projected to grow faster than the overall workforce.

At the same time, biotechnology is becoming increasingly interdisciplinary. Advances in genomics, artificial intelligence, bioinformatics, gene editing, fermentation technologies, precision agriculture, biologics manufacturing, and One Health research are blurring traditional boundaries between agriculture, human health, animal health, and environmental systems. Purdue is uniquely positioned to respond to these trends through its strengths in agriculture, engineering, life sciences, data science, and the One Health initiative.

This degree fills an important gap within Purdue's current academic portfolio by creating a unified biotechnology pathway that integrates agricultural biotechnology, animal and health biotechnology, environmental biotechnology, and bioprocessing and biomanufacturing. The program will prepare graduates to meet growing workforce needs while supporting Indiana's expanding bioeconomy, strengthening Purdue's leadership in biotechnology education, and advancing the university's land-grant mission of translating discovery into economic and societal impact.

Impetus for the Offering What primary river(s) sparked the development of this concept? (Select all that apply)*:

- Faculty-driven: Surfaced through internal department discussions, research advancements, or curriculum reviews.
- Administrative/Strategic direction: Prompted by leadership guidance from the Dean, Office of the Provost, the President, or the Board of Trustees.
- Other (Please specify): The concept emerged through extensive workforce analysis, employer engagement, and ecosystem assessment conducted by the College of Agriculture. Feedback from biotechnology, pharmaceutical, animal health, agricultural technology, and life sciences employers highlighted growing demand for interdisciplinary biotechnology talent with strengths in laboratory sciences, biotechnology applications, data analytics, regulatory systems, and experiential learning. The concept was further informed by state and regional economic development priorities, including the growth of Indiana's biotechnology, life sciences, advanced manufacturing, and bioeconomy sectors, particularly within the Indianapolis metropolitan area.

Portfolio Differentiation* *What does this new curricular pathway provide students that they cannot already access in the active academic portfolio available at Purdue?:*

The Bachelor of Science in Biotechnology creates a distinct interdisciplinary pathway that is not currently available within Purdue University's academic portfolio. While Purdue offers strong programs in areas such as biochemistry, biology, animal sciences, agronomy, food science, plant sciences, engineering, and data science, no existing

undergraduate degree intentionally integrates biotechnology across agricultural, animal, environmental, food, health, and industrial applications within a single academic framework.

The proposed program combines a shared biotechnology core with specialized pathways in three primary biotechnology fields (green, red, and white). Students will develop competencies in molecular biology, genetics, microbiology, genomics, biotechnology laboratory methods, bioinformatics, data analytics, regulatory science, and biotechnology ethics while gaining applied knowledge across multiple biotechnology sectors. This integrated structure differs from existing discipline-specific degrees that typically focus on a single domain or industry application.

The degree also leverages Purdue's unique strengths in One Health by connecting human, animal, plant, and environmental systems within a biotechnology context. Few undergraduate programs nationally provide this breadth while maintaining strong ties to agriculture, life sciences, and biotechnology innovation. The program therefore creates a distinctive educational experience that aligns with emerging workforce needs and evolving scientific disciplines.

Additionally, the program provides students with direct access to Indianapolis' life sciences ecosystem through internships, applied research, experiential learning, and employer engagement opportunities. It creates a recognizable biotechnology pathway that connects existing Purdue strengths with careers in pharmaceuticals, agricultural biotechnology, animal health, diagnostics, genomics, bioinformatics, environmental biotechnology, food and fermentation systems, and advanced biomanufacturing. The degree also establishes a foundation for future certificates, stackable credentials, professional master's programs, and graduate and professional school pathways.

Academic Portfolio Impact (Suspensions/Mergers)*

No Impact: This is a completely net-new addition to the academic portfolio; no existing programs will be impacted.

If yes, list details of Suspended/Phased-Out Program

If you selected 'Yes' above, please list the specific names of the degrees, majors, or concentrations slated for suspending/merging, along with the anticipated timeline for phasing them out.: N/A

Does this program lead to professional licensure or certification required for employment?* No

Will this program seek specialized programmatic accreditation?*: No

Is this new degree proposed as a revenue-sharing model (e.g., online program partnerships, specialized professional fees)?*: No (most common)

Beyond existing departmental allocations, what net-new resources will this offering require within its first three years? (Select all that apply)*

Additional Faculty/Staff: Requires new tenure-track, clinical, or professional staff lines.

Physical Infrastructure: Requires dedicated physical space, specialized labs, or renovations.

Specialized Equipment/Software: Requires high-cost instrumentation, clinical simulators, or specialized licensing.

Does the degree call for a new tuition rate or fee that is not already in use?*

No (most common)

Information for after pre-proposal

CIP Code *CIP codes are structured XX.XXXX (6 total digits).*: 26.1201 Biotechnology

Program Description for Catalog Publication *A brief explanation of what the student will experience and/or learn; no more than 2-3 sentences. This may be published in the Catalog.:*

The Bachelor of Science in Biotechnology prepares students to apply agricultural, biological and life sciences and emerging technologies to challenges in agriculture, food systems, human and animal health, environmental sustainability, and biomanufacturing. Through interdisciplinary coursework, laboratory experiences, research, and industry engagement, students develop the knowledge and skills needed for careers across the bioeconomy or for advanced study in graduate and professional programs, including medicine, veterinary medicine, pharmacy, public health, and related fields.

Learning Outcomes *This is the skill set students are expected to possess by the time of graduation. These will be published in the University online Catalog.:*

1. Apply principles of biology, chemistry, genetics, molecular biology, microbiology, and biotechnology to solve problems in agricultural, animal, human health, environmental, food, and industrial systems.
2. Design, conduct, analyze, and interpret laboratory and field-based biotechnology experiments using appropriate scientific methods, technologies, and analytical tools.
3. Utilize data analytics, bioinformatics, computational tools, and emerging technologies to evaluate biological systems and support evidence-based decision-making.

4. Evaluate biotechnology applications within the context of ethics, regulation, quality systems, sustainability, and societal impact.
5. Integrate concepts across plant, animal, human, and environmental systems to address challenges within the bioeconomy and One Health framework.
6. Communicate scientific and technical information effectively to diverse audiences through written, oral, and professional formats.
7. Demonstrate the technical, professional, and problem-solving competencies necessary for careers in biotechnology and the life sciences or for advanced study in graduate, veterinary, medical, pharmacy, public health, and related professional programs.

Other (majors or concentrations associated with new degree): N/A

Concurrent Program Limitations *List any majors, certificates, or minors that students are not allowed to pursue at the same time as this curriculum. If there are no restrictions, write 'N/A':*
N/A

Revised or redesigned curricula:

Category Number of Credit Hours

Existing or repackaged curricula: Counts of credit hours for this category. Credits reflect courses from existing inventory of courses at the institution.: 0

New curricula: Counts of credit hours for this category. Credits reflect courses developed for the new program that haven't been offered at the institution.: 120

TOTAL: Must match the total number of credit hours required for the program.: 120