

# AGRICULTURAL BIOTECHNOLOGY (AGTECH) AND LIFE SCIENCES

MAY 30, 2019

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# AGRICULTURAL BIOTECHNOLOGY (AGTECH) AND LIFE SCIENCES

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- Follows the nationally recognized Curriculum for Agriculture Science Education (CASE) Animal Science Pathway curriculum in order to increase the breadth and scope of the agricultural curriculum while increasing rigor and relevance
  - The change is endorsed by The National Council for Agricultural Education and managed by the National Association of Agriculture Educators
  - <https://4-h.org/wp-content/uploads/2016/02/AGRI-BIOTECH-FACILITATOR-GUIDE.pdf>
  - <https://www.youtube.com/watch?v=8MK0bPAq3Tw>

# AGRICULTURAL BIOTECHNOLOGY (AGTECH) AND LIFE SCIENCES

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- The Agricultural Biotechnology (AgTech) and Life Sciences Academy introduces concepts of animal science, plant science, and plant and animal biotechnology.
- As seniors, students will produce a culminating research project, approved by the instructor, reflecting the objectives learned in the academy or enroll in an agribusiness course.
- These studies are not limited to lecture and theoretical discussions. Students will work directly with animals, cultivate plants and create projects that demonstrate learning.

# CURRICULUM MODEL

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## **Year 1**

Principles of Animal Related Agricultural Science (Foundation Course)

## **Year 2**

Principles of Plant Related Agricultural Science (Foundation Course)

## **Year 3**

Animal and Plant Biotechnology (Specialization)

## **Year 4**

Agribusiness, Research & Development (Capstone) or Food Science & Safety (Another Specialization)

# *FUTURE CAREERS*

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- Animal or Plant Geneticist
- Biologist
- Crime Scene Investigator
- Environmental/Civil/Physical Engineer
- Farmer
- Food Scientist
- Game Warden
- Hydroponic Technician
- Hydrologist
- Landscape Architect
- Microbiologist
- Municipal Forester
- Naturalist
- Soil Scientist
- Veterinarian Assistant
- Wildlife Biologist
- Zookeeper Assistant

# WHAT IS CASE?

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- An instructional **system**
- **Standards-based** curriculum
- **Intense** teacher professional development
- **Student-directed, inquiry-based, hands-on** instruction to motivate and help students of **all** ability levels.

# HOW DOES CASE HELP?

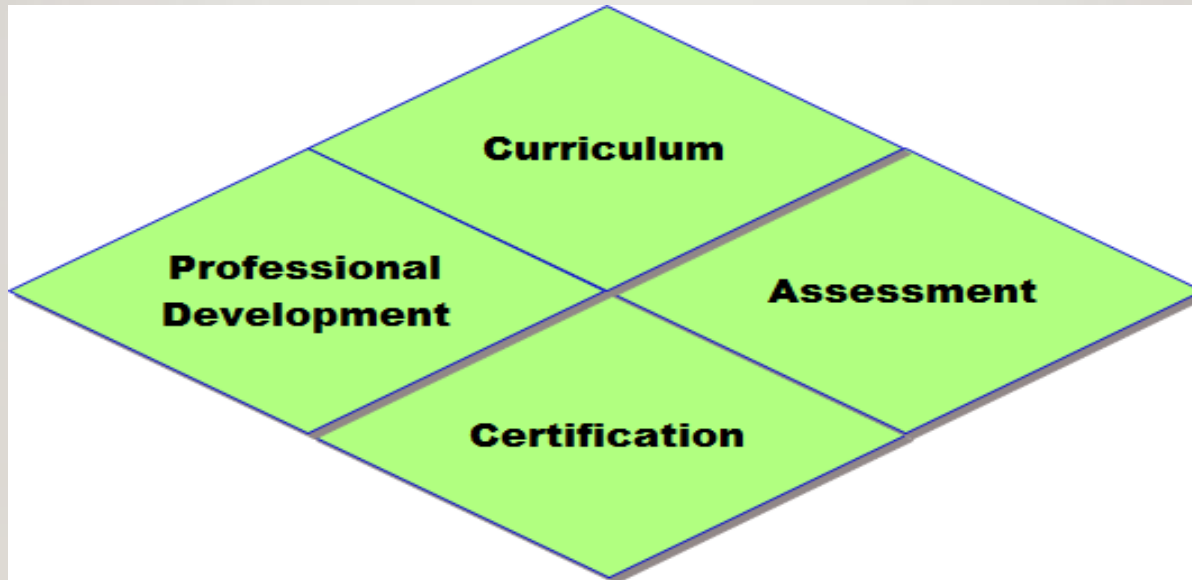
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- Addresses program quality and growth initiatives including Perkins mandates:
  - Logical Sequence of Courses
  - Enhancement of Science and Mathematics
  - Accountability
  - Common assessment of agriculture students

# FOUR CRITICAL COMPONENTS OF **CASE**

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- A four-dimensional approach to agricultural education:





# PRINCIPLES OF AGRICULTURAL SCIENCE - ANIMAL

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- Principles of Agricultural Science — Animal is a foundation-level course engaging students in hands-on laboratories and activities to explore the world of animal agriculture. During the course, students develop a comprehensive Producer's Management Guide for an animal of their choice.

## Areas of study include:

- History & Use of Animals
- Animal Handling & Safety
- Cells & Tissues
- Animal Nutrition
- Animal Reproduction
- Genetics
- Animal Health
- Animal Products, Selection, & Marketing

# ANIMAL AND PLANT BIOTECHNOLOGY

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During Animal and Plant Biotechnology, a specialization level course in the CASE program of study, students become proficient at projects involving micro pipetting, bacterial cultures and transformations, electrophoresis, and polymerase chain reaction. Research and experimental design are highlighted as students develop and conduct industry appropriate investigations.

Areas of study include:

- Laboratory Protocols & Safety Cells
- DNA & Protein
- Genetically Modified Organisms
- Micro propagation
- Polymerase Chain Reaction
- Research in Biotechnology

# Agricultural Research and Development

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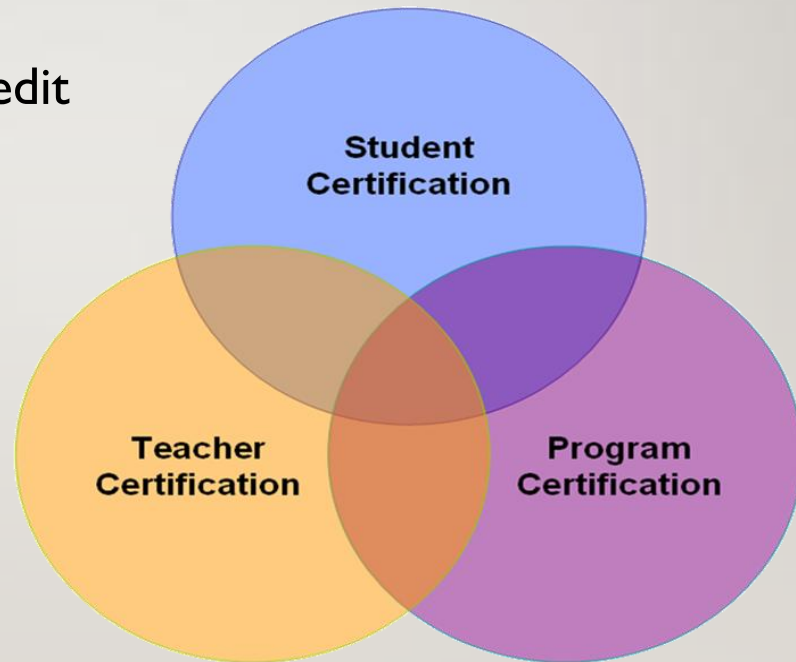
Agricultural Research and Development is the capstone course designed to culminate students' experiences in agriculture, based on the pathway of study they pursued. Woven throughout the course are projects and problems based in practical applications and designed to develop and improve employability skills of students. Students will further enhance critical thinking and teamwork skills as they expand on content knowledge from previous CASE courses.

- Areas of study include:
  - Solve complex real-world problems
  - Conduct research
  - Analyze data
  - Work in teams
  - Develop new products

# Case Certification with New Program

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- Quality assurance
- Will lead to college credit for students
- Three levels of certification



# Articulation Agreements and Affiliate Universities

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- Rutgers University offers up to 12 transfer credits to high school students who have successfully completed a specific CASE course taught by a CASE certified teacher.
- Delaware Valley University offers up to 9 college credits.
- Penn State University hosts and manages CASE Institute sessions, provides graduate credit to CASE Institute participants, and works with local school districts to promote and enhance CASE courses

QUESTIONS???

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