

# INTEGRATIVE BIOSCIENCES AND INNOVATION (IBI)

Doctor of Philosophy (Ph.D., International Program)

HAND-ON  
PRACTICE

FLEXIBLE  
PATHWAY

PERSONALIZED  
COMPETENCY

THE GREEN THUMB  
CONSERVATION  
SOCIETY



## MODE OF STUDY

- Full Time
- English language

## ADMISSION CRITERIA

- Bachelor's degree or higher in biotechnology, agricultural science, other scientific disciplines or equivalent fields
- Others approved by program's committee

## CAREER OPPORTUNITIES

- Academics or researchers in government or private sectors
- Bioproduct/bioprocess developers
- Entrepreneurs/business owners
- Other professions (project coordinators, specialists, project analysts, consultants)

## LEARNING OUTCOMES

- Integrate knowledge and technology in applied biosciences to synthesize new knowledge that addresses challenges in the BCG economy through research
- Proficiently communicate research findings in written and oral formats to engage diverse audiences
- Demonstrate entrepreneurial and resilience mindsets, teamwork, and creativity to achieve their work
- Promote ethical practices and professional standards in conducting research, ensuring the integrity and reproducibility of their work

“Empowering learners to become innovative, ethical, and resilient leaders in applied bioscience by integrating with practical skills, promoting effective communication, and fostering an entrepreneurial mindset”

- FOUNDERS' PHILOSOPHY

## STRUCTURE SUMMARY

Plan	Number of Credits							Thesis
	Compulsory	Compulsory Elective			Free Elective			
Plan 1.1 (Master's degree holders)	3 (S/U)	BCT	BIT	PHT	BCT	BIT	PHT	48
		1 (S/U)	-	-	-	-	-	
Plan 2.2 (Bachelor's degree holders)	1 (S/U)+2	BCT	BIT	PHT	BCT	BIT	PHT	48
		1	1	1	21	21	21	

The University Council granted program permission at the meeting No. 317, Date 7 January, 2026 B.E. 2569

# ABOUT OUR CURRICULUM



## **Tier 1: Compulsory**

Build integrative bioscience foundational knowledge and skills for BCG economy.



## **Tier 2: Compulsory Elective**

Tailor to specific tracks or applications in Biotechnology, Biochemical Technology, and Postharvest Technology, and others



## **Tier 3: Free Elective**

Develop personalized skills based on their research interests or career goals



## **Thesis**

Research projects allowing learners to apply their integrative knowledge and skills to create solutions, processes, or products addressing challenges in BCG economy.

# TIER 1



## Foundational Knowledge

- Integrative Knowledge and Technology for BCG Model
- Seminar in Biosciences and Innovation III
- Seminar in Biosciences and Innovation IV



# TIER 2



## Track Trailing

- Functional Properties of Biochemicals
- Instrumental Techniques for Biosciences
- Technical Bioprocess
- Gene and Recombinant DNA Technology
- Bioinformatics for Biosciences
- Gene Manipulation and Expression in Different Host Systems
- Applied Mathematics and Statistics in Life Sciences
- Physico-Chemical Analysis
- Preharvest Factors
- Postharvest Technology
- Case Study
- Postharvest Physiology and Technology of Agricultural Commodities
- Experimental Design for Biosciences
- Instrumental Techniques for Biosciences
- Agricultural Commodities Quality Analysis



# TIER 3



## Personalized Competency

### Statistics/Computational Methods/AI

- Experimental Design for Biosciences I
- Experimental Design for Biosciences II
- Biological and Environmental Data Preparation for AI training
- AI for Bioinformatics and Systems Biology

### Biotechnology

- Technical Bioprocess
- Gene and Recombinant DNA Technology
- Bioinformatics for Biosciences
- Gene Manipulation and Expression in Different Host Systems
- Applied Mathematics and Statistics in Life Sciences
- Cellular and Molecular Vaccinology
- Vaccine Design and Development
- Vaccine Evaluation and Validation
- Biological Treatment and Utilization of Biowastes
- Plant Technology
- Algal Biotechnology
- Trends in Modern Biotechnology
- Nanobiotechnology
- Upstream Processing of Biopharmaceuticals
- Downstream Processing of Biopharmaceuticals
- Trends in Biopharmaceutical Manufacturing and Regulations
- Biopharmaceutical Processing Practice

### Entrepreneurship

- Patent Analysis for Innovation Development
- Innovative Entrepreneurship
- Business and Management of Biotechnology Enterprise
- Biotechnology Enterprise Initiative

### Special and Selected Topics

- Special Topics in Biosciences I
- Special Topics in Biosciences II
- Selected Topics in Biosciences

### Laboratory Techniques

- Instrumental Techniques for Biosciences
- Analysis and Dying Techniques of Bioproducts
- Molecular Techniques for Bioscience
- Agricultural Commodities Quality Analysis
- Techniques and Solutions in Biotechnology

### Biochemical Technology

- Functional Properties of Biochemicals
- Enzyme Technology and Innovation
- Nucleic Acid Technology and Innovation
- Carbohydrate Technology and Innovation
- Lipid Technology and Innovation
- Flavor Technology and Innovation
- Perfumery Technology and Innovation
- Bioactive Compounds and Nutraceuticals
- Lignin Technology and Innovation
- Yeast Innovative Research and Technology
- Biofuel and Biorefinery

### Scientific Communication

- Scientific Presentation
- Scientific Research Manuscript

### AgriScience & Postharvest

- Physico-Chemical Analysis
- Preharvest Factors
- Postharvest Technology
- Case Study
- Postharvest Losses of Agricultural Commodities
- Postharvest Handling Systems of Ornamentals
- Fresh-Cut Technology for Fruits and Vegetables
- Seed and Grain Technology
- Produce Packaging Systems
- Postharvest Pathology of Agricultural Commodities
- Value Chain Management
- Emerging Agricultural Science
- Postharvest Physiology and Technology of Agricultural Commodities
- Postharvest Biochemistry of Agricultural Commodities

# OUR TEAM

Fill in the experience, mutual encouragement, assistance, and collaboration among members to achieve a common goal

Teamwork  
Efficiency

92%

Healthy Office  
Environment

96%

Socialization  
Between Teams

91%

