**MAJOR: Insect Biology**

**Bachelor of Science in Insect Biology: 120 CR**

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| **Freshman Year** | | | | | |
| *First Semester* | | | *Second Semester* | | |
| 0.5 | **AGR 10100** Introduction to the College of Agriculture and Purdue University | | 4 | **BIOL 11100** Fundamentals of Biology II | |
| 0.5 | **AGR 11700** Introduction to Entomology Programs | | 3 | **CHM 11200** General Chemistry II | |
| 1 | **ENTM 10100** Insect Biology and Societal Grand Challenges | | 3 | **ENTM 21000** Introduction to Insect Behavior | |
| 4 | **BIOL 11000** Fundamentals of Biology I | | 3 | **COM 11400** or **COM 21700** | |
| 3 | **CHM 11100** General Chemistry I | | 3-4 | 1st Year Composition Selective | |
| 2 | **ENTM 10200** The Practice of Science | |  |  | |
| 3 | Calculus Selective | |  |  | |
| 14 | Total Credit Hours | | 16-17 | | Total Credit Hours |
|  |  | |  |  | |
| **Sophomore Year** | | | | | |
| *Third Semester* | | | *Fourth Semester* | | |
| 2 | **ENTM 20600** General Entomology | | 4 | **ENTM 25300** Insect Physiology & Biochemistry | |
| 1 | **ENTM 20700** General Entomology Lab | | 3 | **ENTM 31100** Insect Ecology | |
| 3 | **ENTM 20100** Scientific and Technical Communication | | 3 | Humanities or Social Science Selective | |
| 3  3 | **STAT 30100** Elementary Statistical Methods  **PHYS 21400** The Nature of Physics | | 3  3 | Economics Selective  Elective | |
| 3 | UCC Humanities Selective | |  |  | |
|  |  | |  |  | |
| 15 | Total Credit Hours | | 16 | Total Credit Hours | |
|  |  | |  |  | |
| **Junior Year** | | | | | |
| *Fifth Semester* | | | *Sixth Semester* | | |
| 3 | **AGRY 32000** Genetics | | 3 | **BTNY 35000** Biotechnology in Agriculture | |
| 1 | **AGRY 32100** Genetics lab | | 3 | **ENTM 31200** Insect Chemical Ecology | |
| 3 | **ENTM 30100** Experimentation & Analysis | | 3 | **ENTM 35300** Insecticides & Environment | |
| 4 | **ENTM 33500** Introduction to Insect Identification | | 1 | **ENTM 39300** Insect Biology Practicum | |
| 1 | **ENTM 39300** Insect Biology Practicum | | 3 | Science Selective 1 | |
| 3 | UCC STS Selective | | 3 | Elective | |
| 15 | Total Credit Hours | | 16 | Total Credit Hours | |
|  |  | |  |  | |
| **Senior Year** | | | | | |
| *Seventh Semester* | | | *Eighth Semester* | | |
| 2 | **ENTM 41000** Applied Insect Biology | | 1 | **ENTM 40100** Addressing Grand Challenges Through Insect Biology | |
| 1 | Applied Insect Biology Laboratory Selective2 | | 2 | **ENTM 49310** Insect Biology Capstone Experience | |
| 2 | **ENTM 49310** Insect Biology Capstone Experience | | 1 | **ENTM 49390** Insect Biology Capstone Forum | |
| 3 | Elective | | 3 | Humanities or Social Science Selective | |
| 3-4 | Elective | | 3 | Humanities or Social Science Selective (30000+) | |
| 3 | Elective | | 3 | Elective | |
| 14-15 | | Total Credit Hours | 13 | Total Credit Hours | |

1Insect Biology Directed Science Selectives

2See list of Applied Insect Biology Laboratory Selectives

**College of Agriculture and University Core Alignment**

|  |  |  |
| --- | --- | --- |
| **CoA Core Requirements**  **(Credits)** | **UCC Foundational Outcome**  **(Courses)** | **Insect Biology Core Alignment Course(s)** |
| Agricultural Orientation (1) |  | AGR 10100 and AGR 11700 |
| Biological Sciences (8) | Science (2) | BIOL 11000 and BIOL 11100 |
| Calculus (3) | Quantitative Reasoning (1) | MATH 16010 |
| Statistics (3) |  | STAT 30100 |
| Science, Technology & Society (3) | Science, Tech. & Society (1) | UCC STS Selective |
| Additional Mathematics and Sciences (4) |  | Major Requirements |
| First Year Composition (3-4) | Written Communication (1)  Information Literacy (1) | 1st Year Composition Selective |
| Fundamentals of Speech Communication (3) | Oral Communication (1) | COM 11400 or COM 21700 |
| Additional Written and  Oral Communication (3) |  | ENTM 20100 |
| Economics (3) | Behavioral & Social Science (1) | CoA Economics Selective |
| Humanities (3) | Humanities (1) | CoA HSS Selective |
| Other Humanities & Social Sciences (6) |  | CoA HSS Selectives |
| Humanities & Social Sciences 30000+ (3) |  | CoA HSS Selective (30000+) |
| International Understanding (9)1 |  | CoA International Understanding Selectives |
| Multicultural Awareness (3)1 |  | CoA Multicultural Awareness Selective |
| **Total CoA = 58-59 Credits** | **Total UCC = 10 Courses** |  |

1CoA International Understanding & Multicultural Awareness requirements are met by wisely selecting communications, humanities & social science selectives. See [CoA CHSS courses.xlsx](https://ag.purdue.edu/oap/_layouts/download.aspx?SourceUrl=/oap/documents/COA_CHSS_Courses_protected.xlsx) for guidance.

**Embedded Outcomes**

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| **Outcome** | **Course(s)** | |
| **Communication** (Levels 2 and 3) |  | |
| - Written Communication | ENTM 49390 Insect Biology Capstone Forum | |
| - Oral Communication | ENTM 49390 Insect Biology Capstone Forum | |
| **Ways of Thinking** |  | |
| - Critical Thinking | ENTM 30100 Experimentation & Analysis | |
| - Practical Thinking | ENTM 4100X Applied Insect Biology Laboratory | |
| - Creative Thinking | ENTM 49310 Insect Biology Capstone Experience | |
| **Interpersonal Skills & Intercultural Knowledge** | |  |
| - Interpersonal Skills | CoA Communication Selective (20000+) or other | |
| - Intercultural Knowledge | CoA International Understanding & Multicultural Awareness Selective | |

**General Education Transfer Core**

|  |  |  |
| --- | --- | --- |
| **Outcome** | **Course(s)** | **Credit Hours** |
| Human Cultures – Humanities | UCC Human Cultures: Humanities Selective | 3 |
| Human Cultures – Social Sciences | CoA Economics Selective | 3 |
| Information Literacy | STAT 30100 | 3 |
| Science Selective | BIOL 11000 | 4 |
| Science Selective | CHM 11100 and CHM 11200 | 6 |
| Science, Technology and Society | UCC STS Selective | 3 |
| Written Communication | 1st Year Composition Selective | 3-4 |
| Oral Communication | COM 11400 or COM 21700 | 3 |
| Quantitative Reasoning | MATH 16010 | 3 |
| **Total** |  | **31-32** |

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| **Insect Biology Major Checklist** | | | |
| **√** | **Credits** | **Course** | **Course Title** |
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| **Orientation Requirements (1 credit)** | | | |
| \_\_\_\_\_ | 0.5 | AGR 10100 | Introduction to the CoA and Purdue University |
| \_\_\_\_\_ | 0.5 | AGR 11700 | Introduction to Entomology Programs |
|  |  |  |  |
| **Required ENTM Courses (39 credits)** | | | |
| \_\_\_\_\_ | 1 | ENTM 10100 | Insect Biology and Societal Grand Challenges |
| \_\_\_\_\_ | 2 | ENTM 10200 | The Practice of Science |
| \_\_\_\_\_ | 2 | ENTM 20600 | General Entomology |
| \_\_\_\_\_ | 1 | ENTM 20700 | General Entomology Lab |
| \_\_\_\_\_ | 3 | ENTM 21000 | Introduction to Insect Behavior |
| \_\_\_\_\_ | 4 | ENTM 25300 | Insect Physiology & Biochemistry |
| \_\_\_\_\_ | 3 | ENTM 30100 | Experimentation & Analysis |
| \_\_\_\_\_ | 3 | ENTM 31100 | Insect Ecology |
| \_\_\_\_\_ | 3 | ENTM 31200 | Insect Chemical Ecology |
| \_\_\_\_\_ | 4 | ENTM 33500 | Introduction to Insect Identification |
| \_\_\_\_\_ | 3 | ENTM 35300 | Insecticides & Environment |
| \_\_\_\_\_ | 0.5 | ENTM 39300 | Insect Biology Practicum |
| \_\_\_\_\_ | 0.5 | ENTM 39300 | Insect Biology Practicum |
| \_\_\_\_\_ | 0.5 | ENTM 39300 | Insect Biology Practicum |
| \_\_\_\_\_ | 0.5 | ENTM 39300 | Insect Biology Practicum |
| \_\_\_\_\_ | 1 | ENTM 40100 | Addressing Grand Challenges Through Insect Biology |
| \_\_\_\_\_ | 2 | ENTM 41000 | Applied Insect Biology |
| \_\_\_\_\_ | 2 | ENTM 49310 | Insect Biology Capstone Experience |
| \_\_\_\_\_ | 2 | ENTM 49310 | Insect Biology Capstone Experience |
| \_\_\_\_\_ | 1 | ENTM 49390 | Insect Biology Capstone Forum |
|  |  |  |  |
| **Insect Biology Selectives (4 credits)** | | | |
| \_\_\_\_\_ | 1 | ENTM 4100X | Applied Insect Biology Laboratory Selective1 |
| \_\_\_\_\_ | 3 |  | Directed Science Selective2 |
|  |  |  |  |
| **Other Departmental/Program Course Requirements (33 credits)** | | | |
| \_\_\_\_\_ | 4 | BIOL 11000 | Fundamentals of Biology I |
| \_\_\_\_\_ | 4 | BIOL 11100 | Fundamentals of Biology II |
| \_\_\_\_\_ | 3 | CHM 11100 | General Chemistry I |
| \_\_\_\_\_ | 3 | CHM 11200 | General Chemistry II |
| \_\_\_\_\_ | 3 | PHYS 21400 | The Nature of Physics |
| \_\_\_\_\_ | 3 | STAT 30100 | Elementary Statistical Methods |
| \_\_\_\_\_ | 3 | AGRY 32000 | Genetics |
| \_\_\_\_\_ | 1 | AGRY 32001 | Genetics Laboratory |
| \_\_\_\_\_ | 3 | BTNY 35000 | Biotechnology in Agriculture |
| \_\_\_\_\_ | 3 |  | Calculus Selective3 |
| \_\_\_\_\_ | 3 |  | UCC STS Selective4 |
| **Communication Requirements (9-10 credits)** | | | |
| \_\_\_\_\_ | 3-4 |  | 1st Year Composition Selective5 |
| \_\_\_\_\_ | 3 | COM 11400 **or** COM 21700 | Fundamental of Speech Communication **or**  Science Writing and Presentation |
| \_\_\_\_\_ | 3 | ENTM 20100 | Scientific and Technical Communication |
|  |  |  |  |
| **Humanities & Social Science Requirements (15 credits)** | | | |
| \_\_\_\_\_ | 3 |  | Economics Selective6 |
| \_\_\_\_\_ | 3 |  | Humanities or Social Science Selective7 |
| \_\_\_\_\_ | 3 |  | Humanities or Social Science Selective7 |
| \_\_\_\_\_ | 3 |  | Humanities or Social Science Selective (30000+)7 |
| \_\_\_\_\_ | 3 |  | UCC Humanities Selective7 |
|  |  |  |  |
| **Electives (18-19 credits)** | | | |
| \_\_\_\_\_ | 18-19 |  | Electives |
|  |  |  |  |
|  |  |  |  |

1 See list of Applied Insect Biology Laboratory Selectives

2 See list of Insect Biology Science Selectives

3 See CoA Calculus Selectives (<https://ag.purdue.edu/oap/pages/core-math_science.aspx#Calculus>)

4 See list of UCC STS Selectives (<http://www.purdue.edu/provost/students/s-initiatives/curriculum/courses.html>)

5 See CoA Communication options (<https://ag.purdue.edu/oap/pages/core-written_oral.aspx>)

6 See CoA Economics Selectives (<https://ag.purdue.edu/oap/pages/core-social_humanities.aspx>)

7 See CoA H&SS Selectives (<https://ag.purdue.edu/oap/pages/core-social_humanities.aspx>)

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| **Insect Biology Directed Science Selectives (3 credits required)** | | |
| **Credits** | **Course** | **Course Title** |
| 3 | AGRY 48000 | Plant Genetics\* |
| 3 | AGRY 51100 | Population Genetics\* |
| 3 | AGRY 52000 | Principles and Methods of Plant Breeding\* |
| 2 | AGRY 57200 | Molecular Cytogenetics\* |
| 1 | AGRY 57200 | Molecular Cytogenetics Laboratory\* |
| 3 | ANSC 51100 | Population Genetics\* |
| 2 | ANSC 51400 | Animal Biotechnology\* |
| 3 | BCHM 22100 | Analytical Biochemistry I\* |
| 3 | BCHM 36100 | Molecules\* |
| 3 | BCHM 46300 | Macromolecular Machines\* |
| 4 | BIOL 22100 | Introduction to Microbiology\* |
| 2 | BIOL 28000 | Genetics and Molecular Biology\* |
| 1 | BIOL 28100 | Laboratory in Genetics and Molecular Biology\* |
| 3 | BIOL 48100 | Eukaryotic Genetics\* |
| 3 | BTNY 42000 | Plant Cellular and Developmental Biology\* |
| 4 | CHM 22400 | Introductory Quantitative Analysis\* |
| 3 | CHM 25500 | Organic Chemistry I\* |
| 3 | ENTM 32810 | Practical Molecular Biology\* |
| 2 | IT 22600 | Biotechnology Laboratory I |
| 2 | IT 22700 | Biotechnology Laboratory II\* |
| 4 | PHYS 22100 | General Physics II\* |
|  |  |  |
| **Applied Insect Biology Laboratory Selectives (1 credit required)** | | |
| **Credits** | **Course** | **Course Title** |
| 1 | ENTM 41001 | Insects of Urban Landscapes\* |
| 1 | ENTM 41002 | Insects of Agricultural Crops\* |
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\* Co-requisite or Prerequisite required. Prerequisites are sometimes fulfilled by courses required in the Insect Biology curriculum