

# PLANT SCIENCES, B.S.

**Begin Campus:** Any Penn State Campus

**End Campus:** University Park

## SUGGESTED ACADEMIC PLAN

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2023-24 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition (*Note: the archive only contains suggested academic plans beginning with the 2018-19 edition of the Undergraduate Bulletin*).

### Agroecology Option: Plant Sciences, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

#### First Year

Fall	Credits Spring	Credits
BIOL 110 <sup>†</sup>	4 CHEM 110 <sup>†</sup>	3
AG 150	2 CHEM 111 <sup>†</sup>	1
ENGL 15, 30H, or ESL 15 <sup>††</sup>	3 AGECO 295	1
MATH 22, 26, 40, 41, 110, or 140 <sup>††</sup>	3-5 SOILS 101 <sup>**†</sup>	3
AGRO 28 or HORT 101 <sup>*</sup>	3 SOILS 102	1
	AGECO 201 <sup>*</sup>	3
	CAS 100, CAS 100A, CAS 100B, or CAS 100C <sup>††</sup>	3
	<b>15-17</b>	<b>15</b>

#### Second Year

Fall	Credits Spring	Credits
PLANT 200	3 ENT 313	2
ENGL 202C or 202D <sup>††</sup>	3 ENT 314 or 316	1
AGBM 101, ECON 14, ECON 102, or ECON 104 <sup>†</sup>	3 SOILS 402	3
STAT 200, 240, or 250 <sup>††</sup>	3-4 General Education Course	3
AGECO 122, 134, AGECO 144, AGECO 154, or AGECO 496 (Agroecology Selection)	3 AG 160, GEOG 30N, PHIL 13, PHIL 103, or PHIL 132 (Ethics Selection)	3
	General Education Course (GHW)	1.5
	<b>15-16</b>	<b>13.5</b>

#### Third Year

Fall	Credits Spring	Credits
AGECO 457 <sup>*</sup>	3 SOILS 401	3

PPEM 405	3 AGRO 423, 425, HORT 202, HORT 315, HORT 431, HORT 432, HORT 433, or SOILS 418 (Production Selection)	3
BIOL 222 or HORT 407 (Plant Breeding/Genetics Selection)	3 Supporting Course	3
AGRO 423, 425, HORT 202, HORT 315, HORT 431, HORT 432, HORT 433, or SOILS 418 (Production Selection)	3 Supporting Course	3
Supporting Course	3 General Education Course	3
General Education Course (GHW)	1.5	
	<b>16.5</b>	<b>15</b>

#### Fourth Year

Fall	Credits Spring	Credits
AGECO 438	4 PLANT 461 <sup>*</sup>	3
AGECO 495	1 Supporting Course	3
Supporting Course	3 Supporting Course	3
AGRO 410W, HORT 412W, or SOILS 412W (Writing Across the Curriculum)	3-4 General Education Course	3
General Education Course	3 Elective	4
	<b>14-15</b>	<b>16</b>

#### Total Credits 120-124

\* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

# Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

#### University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

#### Advising Note:

Please consult with your academic adviser regarding the appropriate selection of elective and supporting courses. Supporting courses must be selected from the "Approved List of Additional Courses".

## Crop Production Option: Plant Sciences, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

### First Year

Fall	Credits Spring	Credits
BIOL 110 <sup>†</sup>	4 CHEM 110 <sup>†</sup>	3
AG 150	2 CHEM 111 <sup>†</sup>	1
ENGL 15, 30H, or ESL 15 <sup>††</sup>	3 AGECO 295	1
MATH 22, 26, 40, 41, 110, or 140 <sup>††</sup>	3-5 SOILS 101 <sup>*††</sup>	3
AGRO 28 or HORT 101 <sup>*</sup>	3 SOILS 102	1
	AGECO 201	3
	General Education Course	3
<b>15-17</b>		<b>15</b>

### Second Year

Fall	Credits Spring	Credits
PLANT 200	3 ENT 313	2
ENGL 202C or 202D <sup>††</sup>	3 ENT 314 or 316	1
AGBM 101, ECON 14, ECON 102, or ECON 104 <sup>†</sup>	3 STAT 200, 240, or 250 <sup>††</sup>	4
AG 160, PHIL 13, PHIL 103, or PHIL 132 (Ethics Selection) <sup>†</sup>	3 AEE 201, 360, 460, or 465 (Leadership Selection)	3
CAS 100, CAS 100A, CAS 100B, or CAS 100C <sup>††</sup>	3 AGBM 102, 106, 200, or 407 (Business Selection)	3
AGECO 154 (or Supporting Course)	2 General Education Course	3
<b>17</b>		<b>16</b>

### Third Year

Fall	Credits Spring	Credits
AGRO 423	3 SOILS 401	3
AGECO 429	2 SOILS 402	3
AGECO 438	4 AGRO 425	3
Supporting Course	3 AGRO 410W, HORT 412W, or SOILS 412W (Writing Across the Curriculum)	3-4
General Education Course	3 AGECO 418, ANSC 201, GEOG 160, or SOILS 450 (Special Interest Selection)	3-4
<b>15</b>		<b>15-17</b>

### Fourth Year

Fall	Credits Spring	Credits
AGECO 495 or AGRO 496	1 HORT 407	3
AGECO 457 <sup>*</sup>	3 PLANT 461 <sup>*</sup>	3
PPEM 405	3 General Education Course	3
SOILS 403 (or Supporting Course)	2 General Education Course (GHW)	1.5
Supporting Course	3 Elective	4

Supporting Course	3
General Education Course (GHW)	1.5
<b>16.5</b>	
<b>14.5</b>	

### Total Credits 124-128

- \* Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

### University Requirements and General Education Notes:

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W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

### Advising Note:

Please consult with your academic adviser regarding the appropriate selection of elective and supporting courses. Supporting courses must be selected from the "Approved List of Additional Courses".

## Horticulture Option: Plant Sciences, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

### First Year

Fall	Credits Spring	Credits
BIOL 110 <sup>†</sup>	4 CHEM 110 <sup>†</sup>	3
AG 150	2 CHEM 111 <sup>†</sup>	1
ENGL 15, 30H, or ESL 15 <sup>††</sup>	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C <sup>††</sup>	3
MATH 22, 26, 40, 41, 110, or 140 <sup>††</sup>	3-5 AGBM 101, ECON 14, ECON 102, or ECON 104 <sup>†</sup>	3
HORT 101 <sup>*</sup>	3 HORT 202 <sup>*</sup>	3
	General Education Course	3
<b>15-17</b>		<b>16</b>

### Second Year

Fall	Credits Spring	Credits
ENGL 202C or 202D <sup>††</sup>	3 ENT 313	2
SOILS 101 <sup>††</sup>	3 ENT 314 or 316	1
STAT 200, 240, or 250 <sup>††</sup>	3-4 HORT 232	3
HORT 101, 137, 138, 431, 432, or 433 (HORT Plant Materials Selection)	3 HORT 315 <sup>*</sup>	3
General Education Course	3 AGBM 200, 407, BLAW 243, BA 301, BA 303, SPAN 1, SPAN 2, SPAN 3, or SPAN 105 (Business/Spanish Selection)	3-4
General Education Course (GHW)	1.5 General Education Course	3
<b>16.5-17.5</b>		<b>15-16</b>

### Third Year

Fall	Credits Spring	Credits
PLANT 200	3 HORT 412W <sup>*</sup>	3
HORT 455	3 HORT 408, 431, 432, 433, or 453 (HORT Production Selection)	3-4
HORT 238 or AGRO 438	3-4 AGBM 200, 407, BLAW 243, BA 301, BA 303, SPAN 1, SPAN 2, SPAN 3, or SPAN 105 (Business/Spanish Selection)	3-4
HORT 408, 431, 432, 433, or 453 (HORT Production Selection)	3-4 General Education Course	3
Elective	3 General Education Course	3
<b>15-17</b>		<b>15-17</b>

### Fourth Year

Fall	Credits Spring	Credits
AGECO 457 <sup>*</sup>	3 HORT 407	3

PPEM 405 or 300	3 PLANT 461 <sup>*</sup>	3
HORT 445	3 HORT 402W	3
AGBM 200, 407, BLAW 243, BA 301, BA 303, SPAN 1, SPAN 2, SPAN 3, or SPAN 105 (Business/Spanish Selection)	3-4 HORT 495 or 496	1
Elective or Supporting Course	3-6 General Education Course (GHW)	1.5
	Elective or Supporting Course	1-6
<b>15-19</b>		<b>12.5-17.5</b>

### Total Credits 120-137

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### University Requirements and General Education Notes:

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All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

### Advising Note:

Please consult with your academic adviser regarding the appropriate selection of elective and supporting courses. Supporting courses must be selected from the "Approved List of Additional Courses".

## Plant Genetics and Biotechnology Option: Plant Sciences, B.S. at University Park Campus

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### First Year

Fall	Credits	Spring	Credits
AG 150	2	CHEM 110 <sup>†</sup>	3
BIOL 110 <sup>†</sup>	4	CHEM 111 <sup>†</sup>	1
ENGL 15, 30H, or ESL 15 <sup>††</sup>	3	SOILS 101 <sup>*††</sup>	3
MATH 22, 26, 40, 41, 110, or 140 <sup>††</sup>	3-5	CAS 100, CAS 100A, CAS 100B, or CAS 100C <sup>††</sup>	3
AGRO 28 or HORT 101	3	General Education Course	3
		General Education Course	3
	<b>15-17</b>		<b>16</b>

### Second Year

Fall	Credits	Spring	Credits
CHEM 112	3	STAT 200, 240, or 250 <sup>††</sup>	3-4
CHEM 113	1	CHEM 210	3
PLANT 200	3	BIOL 230W, 240W, BMB 211 <i>and</i> BMB 212, MICRB 201 <i>and</i> MICRB 202, or MICRB 251 <i>and</i> MICRB 252 (Microbiology, Molecular Biology and Biochemistry Selection)	4-5
BIOL 222	3	General Education Course	3
AGBM 101, ECON 14, ECON 102, or ECON 104 <sup>†</sup>	3	General Education Course (GHW)	1.5
PHYS 250	4		
	<b>17</b>		<b>14.5-16.5</b>

### Third Year

Fall	Credits	Spring	Credits
AGECO 457 <sup>*</sup>	3	AGRO 410W	4
CHEM 212	3	HORT/BIOTC/BIOL 459	3
HORT 407	3	ENT 313	2
AGRO 423, 425, HORT 202, HORT 315, HORT 431, HORT 432, HORT 433, or SOILS 418 (Production Selection)	3	ENT 314 or 316	1
General Education Course	3	ENGL 202C or 202D <sup>††</sup>	3
		Elective	3
	<b>15</b>		<b>16</b>

### Fourth Year

Fall	Credits	Spring	Credits
PPEM 405 <sup>*</sup>	3	AGRO/BIOTC 460	3
BMB 400	2	PLANT 461 <sup>*</sup>	3

AGECO 495, AGRO 495, HORT 495, or HORT 496	1	BIOL 407, 424, 441, HORT 402W, HORT 412W, or 420 (General Plant Science Selection)	3
BIOL 412, 414, 427, 428, 436, 448, ENT 420, HORT 445, or PPEM 425 (Plant Ecology, Evolution and Systematics Selection)	3	ENT 402W, 410, PPEM 416, or PPEM 425 (Plant Microbiology and Entomology Selection)	3-4
BIOL 439, BIOTC 479, or HORT 497 (Plant Genetics and Biotechnology Selection)	2-3	General Education Course (GHW)	1.5
General Education Course	3		
	<b>14-15</b>		<b>13.5-14.5</b>

### Total Credits 121-127

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All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

### Advising Note:

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## Plant Science Option: Plant Sciences, B.S. at University Park Campus

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### First Year

Fall	Credits	Spring	Credits
AG 150	2	CHEM 110 <sup>†</sup>	3
BIOL 110 <sup>†</sup>	4	CHEM 111 <sup>†</sup>	1
ENGL 15, 30H, or ESL 15 <sup>††</sup>	3	SOILS 101 <sup>*††</sup>	3
MATH 22, 26, 40, 41, 110, or 140 <sup>††</sup>	3-5	CAS 100, CAS 100A, CAS 100B, or CAS 100C <sup>††</sup>	3
AGRO 28 or HORT 101	3	General Education Course	3
		General Education Course	3
	<b>15-17</b>		<b>16</b>

### Second Year

Fall	Credits	Spring	Credits
CHEM 112	3	STAT 200, 240, or 250 <sup>††</sup>	3-4
CHEM 113	1	CHEM 210	3
PLANT 200	3	ENGL 202C or 202D <sup>††</sup>	3
AGBM 101, ECON 14, ECON 102, or ECON 104 <sup>†</sup>	3	BIOL 230W, 230W, BMB 211 and BMB 212, MICRB 201 and MICRB 202, MICRB 251, or MICRB 252 (Microbiology Selection)	4-5
PHYS 250	4	General Education Course	3
General Education Course	3		
	<b>17</b>		<b>16-18</b>

### Third Year

Fall	Credits	Spring	Credits
AGECO 457 <sup>*</sup>	3	BIOL 222	3
CHEM 212	3	CHEM 213	2
AGRO 410W, 460, BIOL 407, BIOL 441, BIOL 424, HORT 402W, HORT 407, HORT 412W, 420, or PPEM 430 (General Plant Science Selection)	3-4	AGRO 410W, HORT 412W, or SOILS 412W (Writing Across the Curriculum Selection)	3-4
General Education Course	3	General Education Course	3
Elective	3	Elective	3
	<b>15-16</b>		<b>14-15</b>

### Fourth Year

Fall	Credits	Spring	Credits
PPEM 405 <sup>*</sup>	3	PLANT 461 <sup>*</sup>	3
AGECO 495	1	AGRO 410W, 460, BIOL 407, BIOL 441, BIOL 424, HORT 402W, HORT 407, HORT 412W, 420, or PPEM 430 (General Plant Science Selection)	3-4

ENT 313	2 BIOL 439, ENT 402W, ENT 410, or PPEM 425 (Plant Microbiology and Entomology Selection)	3
ENT 314	1 AGRO 460, BIOL 439, HORT 407, or HORT 459 (Plant Genetics and Biotechnology Selection)	3
BIOL 412, 414, 427, 428, 436, 448, ENT 402W, ENT 420, HORT 445, or PPEM 425 (Plant Ecology, Evolution and Systematics Selection)	3 Elective	2-3
Elective	3	
	<b>13</b>	<b>14-16</b>

### Total Credits 120-128

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### Advising Note:

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## Agroecology Option: Plant Sciences, B.S. at Commonwealth Campuses

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### First Year

Fall	Credits Spring	Credits
First Year Seminar	1-3 CHEM 110 <sup>†</sup>	3
BIOL 110 <sup>†</sup>	4 CHEM 111 <sup>†</sup>	1
ENGL 15, 30H, or ESL 15 <sup>††</sup>	3 AG 160, GEOG 30N, PHIL 13, PHIL 103, or PHIL 132 (Ethics Selection)	3
MATH 22, 26, 40, 41, 110, or 140 <sup>††</sup>	3-5 Elective	3
General Education Course	3 General Education Course	3
	General Education Course (GHW)	1.5
	<b>14-18</b>	<b>14.5</b>

### Second Year

Fall	Credits Spring	Credits
AGBM 101, ECON 14, ECON 102, or ECON 104 <sup>†</sup>	3 ENGL 202C or 202D <sup>††</sup>	3
CAS 100 <sup>††</sup>	3 Supporting Course or Elective	3
STAT 200, 240, or 250 <sup>††</sup>	3-4 Supporting Course	4
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course (GHW)	1.5
	<b>15-16</b>	<b>14.5</b>

### Third Year

Fall	Credits Spring	Credits
SOILS 101 <sup>††</sup>	3 ENT 313	2
SOILS 102	1 ENT 316	1
PPEM 405	3 AGECO 201 <sup>*</sup>	3
PLANT 200	3 AGRO 410W, HORT 412W, or SOILS 412W (Writing Across the Curriculum)	3-4
AGRO 28 or HORT 101 <sup>*</sup>	3 AGECO 122, 134, AGECO 144, AGECO 154, or AGECO 496 (Agroecology Selection)	3
AGRO 423, 425, HORT 202, HORT 315, HORT 431, HORT 432, HORT 433, or SOILS 418 (Production Selection)	3 AGRO 423, 425, HORT 202, HORT 315, HORT 431, HORT 432, HORT 433, or SOILS 418 (Production Selection)	3
	<b>16</b>	<b>15-16</b>

### Fourth Year

Fall	Credits Spring	Credits
AGECO 295	1 PLANT 461 <sup>*</sup>	3
AGECO 457 <sup>*</sup>	3 SOILS 401	3
AGECO 438	4 SOILS 402	3

BIOL 222 or HORT 407 (Plant Breeding/Genetics Selection)	3 AGECO 495 (or Elective)	1
Supporting Course	4 Supporting Course	3
	Supporting Course	3
	<b>15</b>	<b>16</b>

### Total Credits 120-126

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- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

### University Requirements and General Education Notes:

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### Advising Note:

Please consult with your academic adviser regarding the appropriate selection of elective and supporting courses. Supporting courses must be selected from the "Approved List of Additional Courses".

## Crop Production Option: Plant Sciences, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

### First Year

Fall	Credits Spring	Credits
First Year Seminar	1-3 CHEM 110 <sup>†</sup>	3
BIOL 110 <sup>†</sup>	4 CHEM 111 <sup>††</sup>	1
ENGL 15, 30H, or ESL 15 <sup>††</sup>	3 Supporting Course	3-4
MATH 22, 26, 40, 41, 110, or 140 <sup>††</sup>	3-5 General Education Course	3
Elective	3 General Education Course (GHW)	3
	<b>14-18</b>	<b>13-14</b>

### Second Year

Fall	Credits Spring	Credits
AGBM 101, ECON 14, ECON 102, or ECON 104 <sup>†</sup>	3 ENGL 202C or 202D <sup>††</sup>	3
AG 160, PHIL 13, PHIL 103, or PHIL 132 (Ethics Selection) <sup>†</sup>	3 CAS 100 <sup>††</sup>	3
General Education Course	3 STAT 200, 240, or 250 <sup>††</sup>	3-4
General Education Course	3 AGRO 28 or HORT 101 <sup>*</sup>	3
Elective	4 Supporting Course	3
	<b>16</b>	<b>15-16</b>

### Third Year

Fall	Credits Spring	Credits
SOILS 101 <sup>*††</sup>	3 AGECO 201	3
SOILS 102	1 ENT 313	2
PLANT 200	3 ENT 314 or 316	1
AGECO 438	4 AGRO 410W, SOILS 412W, or HORT 412W (Writing Across the Curriculum)	3-4
AGRO 423	3 AGRO 425	3
AGECO 154 (or Supporting Course)	2 AGECO 418, ANSC 201, GEOG 160, or SOILS 450 (Special Interest Selection)	3
	<b>16</b>	<b>15-16</b>

### Fourth Year

Fall	Credits Spring	Credits
AGECO 457 <sup>*</sup>	3 PLANT 461 <sup>*</sup>	3
AEE 201, 360, 460, or 465 (Leadership Selection)	3 SOILS 401	3
AGBM 102, 106, 200, or 407 (Business Selection)	3 SOILS 402	3
AGECO 429	2 AGECO 295 (or Supporting Course)	1-3
AGECO 495 or AGRO 495	1 HORT 407	3

PPEM 405	3 Supporting Course	3
	<b>15</b>	<b>16-18</b>

### Total Credits 120-129

- \* Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

### University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

### Advising Note:

Please consult with your academic adviser regarding the appropriate selection of elective and supporting courses. Supporting courses must be selected from the "Approved List of Additional Courses".



## Horticulture Option: Plant Sciences, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

### First Year

Fall	Credits Spring	Credits
First Year Seminar	1-3 CHEM 110 <sup>†</sup>	3
BIOL 110 <sup>†</sup>	4 CHEM 111 <sup>†</sup>	1
ENGL 15, 30H, or ESL 15 <sup>††</sup>	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C <sup>††</sup>	3
MATH 22, 26, 40, 41, 110, or 140 <sup>††</sup>	3-5 AGBM 101, ECON 14, ECON 102, or ECON 104 <sup>†</sup>	3
General Education Course (GHW)	1.5 AGBM 200, 407, BLAW 243, BA 301, BA 303, SPAN 1, SPAN 2, SPAN 3, or SPAN 105 (Business/Spanish Selection)	3-4
	General Education Course	3
<b>12.5-16.5</b>		<b>16-17</b>

### Second Year

Fall	Credits Spring	Credits
ENGL 202C or 202D <sup>††</sup>	3 AGBM 200, 407, BLAW 243, BA 301, BA 303, SPAN 1, SPAN 2, SPAN 3, or SPAN 105 (Business/Spanish Selection)	3-4
STAT 200, 240, or 250 <sup>††</sup>	3-4 Elective or Supporting Course	3
AGBM 200, 407, BLAW 243, BA 301, BA 303, SPAN 1, SPAN 2, SPAN 3, or SPAN 105 (Business/Spanish Selection)	4 General Education Course	3
General Education Course	3 General Education Course	3
General Education Course	3 General Education Course (GHW)	1.5
<b>16-17</b>		<b>13.5-14.5</b>

### Third Year

Fall	Credits Spring	Credits
HORT 101 <sup>*</sup>	3 HORT 202 <sup>*</sup>	3
SOILS 101 <sup>*††</sup>	3 HORT 232	3
PLANT 200	3 HORT 315 <sup>*</sup>	3
HORT 455	3 ENT 313	2
HORT 238 or AGRO 438	3-4 ENT 314 or 316	1
	HORT 408, 431, 432, 433, or 453 (HORT Production Selection)	3-4
<b>15-16</b>		<b>15-16</b>

### Fourth Year

Fall	Credits Spring	Credits
AGECO 457 <sup>*</sup>	3 HORT 407	3
PPEM 405 or 300	3 PLANT 461 <sup>*</sup>	3
HORT 445	3 HORT 402W	3
HORT 408, 431, 432, 433, or 453 (HORT Production Selection)	4 HORT 495 or 496	1
HORT 131, 137, 138, 431, 432, or 433 (HORT Plant Materials Selection)	3 HORT 412W <sup>*</sup>	3
	Elective or Supporting Course	3
<b>16</b>		<b>16</b>

### Total Credits 120-129

\* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

# Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

### University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

### Advising Note:

Please consult with your academic adviser regarding the appropriate selection of elective and supporting courses. Supporting courses must be selected from the "Approved List of Additional Courses".

## Plant Genetics and Biotechnology Option: Plant Sciences, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

### First Year

Fall	Credits Spring	Credits
First Year Seminar	1-3 CHEM 110 <sup>†</sup>	3
BIOL 110 <sup>†</sup>	4 CHEM 111 <sup>†</sup>	1
ENGL 15, 30H, or ESL 15 <sup>††</sup>	3 CAS 100, CAS 100A, CAS 100B, or CAS 100C <sup>††</sup>	3
MATH 22, 26, 40, 41, 110, or 140 <sup>††</sup>	3-5 General Education Course	3
General Education Course	3 General Education Course	3
<b>14-18</b>		<b>13</b>

### Second Year

Fall	Credits Spring	Credits
CHEM 112	3 ENGL 202C or 202D <sup>††</sup>	3
CHEM 113	1 STAT 200, 240, or 250 <sup>††</sup>	3-4
AGBM 101, ECON 14, ECON 102, or ECON 104 <sup>††</sup>	3 BIOL 230W, 240W, BMB 211 <b>and</b> BMB 212, MICRB 201 <b>and</b> MICRB 202, or MICRB 251 <b>and</b> MICRB 252 (Microbiology, Molecular Biology and Biochemistry Selection)	4-5
PHYS 250	4 General Education Course	3
General Education Course	3 General Education Course (GHW)	1.5
General Education Course (GHW)	1.5	
<b>15.5</b>		<b>14.5-16.5</b>

### Third Year

Fall	Credits Spring	Credits
BIOL 222	3 AGRO 410W	4
CHEM 210	3 HORT/BIOTC/BIOL 459	3
AGRO 28 or HORT 101	3 CHEM 212	3
PPEM 405 <sup>*</sup>	3 ENT 313	2
PLANT 200	3 ENT 314 or 316	1
AGRO 423, 425, HORT 202, HORT 315, HORT 431, HORT 432, HORT 433, or SOILS 418 (Production Selection)	3 SOILS 101 <sup>*††</sup>	3
<b>18</b>		<b>16</b>

### Fourth Year

Fall	Credits Spring	Credits
AGECO 457 <sup>*</sup>	3 AGRO/BIOTC 460	3
BMB 400	2 PLANT 461 <sup>*</sup>	3

HORT 407	3 BIOL 407, 424, 441, HORT 402W, HORT 412W, or 420 (General Plant Science Selection)	3
AGECO 495, AGRO 495, HORT 495, or HORT 496	1 ENT 402W, 410, PPEM 416, or PPEM 425 (Plant Microbiology and Entomology Selection)	3
BIOL 412, 414, 427, 428, 436, 448, ENT 420, HORT 445, or PPEM 425 (Plant Ecology, Evolution and Systematics Selection)	3-4 Elective	3-4
BIOL 439, BIOTC 479, or HORT 497 (Plant Genetics and Biotechnology Option)	2-3	
<b>14-16</b>		<b>15-16</b>

### Total Credits 120-129

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# Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

### University Requirements and General Education Notes:

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General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

### Advising Note:

Please consult with your academic adviser regarding the appropriate selection of elective and supporting courses. Supporting courses must be selected from the "Approved List of Additional Courses".

## Plant Science Option: Plant Sciences, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

### First Year

Fall	Credits Spring	Credits
First Year Seminar	1-3 CHEM 110 <sup>†</sup>	3
BIOL 110 <sup>†</sup>	4 CHEM 111 <sup>†</sup>	1
ENGL 15, 30H, or ESL 15 <sup>††</sup>	3 SOILS 101 <sup>*††</sup>	3
MATH 22, 26, 40, 41, 110, or 140 <sup>††</sup>	3-5 General Education Course	3
General Education Course	3 General Education Course	3
	General Education Course (GHW)	1.5
<b>14-18</b>		<b>14.5</b>

### Second Year

Fall	Credits Spring	Credits
CHEM 112	3 STAT 200, 240, or 250 <sup>††</sup>	3-4
CHEM 113	1 CHEM 210	3
AGBM 101, ECON 14, ECON 102, or ECON 104 <sup>††</sup>	3 ENGL 202C or 202D <sup>††</sup>	3
PHYS 250	4 Elective	3
CAS 100 <sup>††</sup>	3 General Education Course	3
General Education Course	3 General Education Course (GHW)	1.5
<b>17</b>		<b>16.5-17.5</b>

### Third Year

Fall	Credits Spring	Credits
AGECO 457 <sup>*</sup>	3 BIOL 222	3
PPEM 405 <sup>*</sup>	3 CHEM 213	2
CHEM 212	3 AGRO 410W, HORT 412W, or SOILS 412W	3-4
PLANT 200	3 BIOL 230W, 240W, BMB 211 <b>and</b> BMB 212, MICRB 201 <b>and</b> MICRB 202, MICRB 251, or MICRB 252 (Microbiology Selection)	3-4
AGRO 28 or HORT 101	3 Elective	3
<b>15</b>		<b>14-16</b>

### Fourth Year

Fall	Credits Spring	Credits
AGECO 495	1 PLANT 461 <sup>*</sup>	3
ENT 313	2 AGRO 410W, 460, BIOL 407, BIOL 441, BIOL 424, HORT 402W, HORT 407, HORT 412W, 420, or PPEM 430 (General Plant Science Selection)	4

ENT 314	1 AGRO 460, BIOL 439, HORT 407, or HORT 459 (Plant Genetics and Biotechnology Selection)	3
BIOL 412, 414, 427, 428, 436, 448, ENT 402W, ENT 420, HORT 445, or PPEM 425 (Plant Ecology, Evolution and Systematics Selection)	3-4 Elective	3
BIOL 439, ENT 402W, ENT 410, PPEM 416, or PPEM 425 (Plant Microbiology and Entomology Selection)	3-4 Elective	3
AGRO 410W, 460, BIOL 407, BIOL 441, BIOL 424, HORT 402W, HORT 407, HORT 412W, 420, or PPEM 430 (General Plant Science Selection)	4	
<b>14-16</b>		<b>16</b>

### Total Credits 121-130

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### Advising Note:

Please consult with your academic adviser regarding the appropriate selection of elective and supporting courses. Supporting courses must be selected from the "Approved List of Additional Courses".