HORTICULTURE

Programs of Study

College of DuPage Horticulture
and Metea Valley High School

College of DuPage
Horticulture

NATIONAL ASSOCIATION OF LANDSCAPE PROFESSIONALS
Accredited

What is a Program of Study?

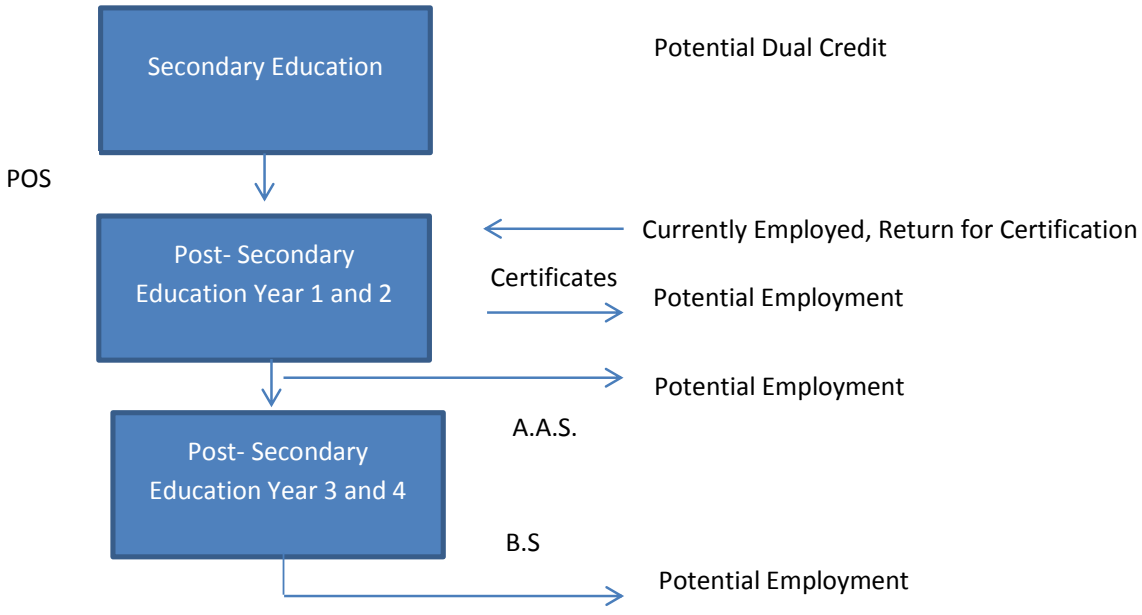
A program of study (POS) is a comprehensive, structured approach for delivering academic and career and technical education to prepare students for postsecondary education and career success. A POS provides successful student transitions between secondary and postsecondary education.

At minimum, the POS must:

- Incorporate and align secondary and postsecondary education elements
- Include academic and CTE content in a coordinated, non-duplicative progression of courses
- Offer the opportunity, where appropriate, for secondary students to acquire postsecondary credits
- Lead to an industry-recognized credential or certificate at the postsecondary level, or an associate or baccalaureate degree
- Support the tenants of the POS 10 Component Framework (http://cte.ed.gov/docs/POSLocalImplementationTool-9-14-10.pdf)

Program of Study Pathways

A Program of Study Pathway describes the courses, sequences, certificates and degrees that a student can obtain at the secondary and post-secondary education level in pursuit of various career paths.



What is Horticulture?

Horticulture is part of the Agriculture, Food and Natural Resources cluster of the Illinois Career Cluster Model. Specifically, this pathway applies to the Plant Systems section. The career plan of study can serve as a guide, along with other career planning materials, as learners continue on a career path. Courses listed in the plans are only recommended coursework and should be individualized to meet the learner's educational and career goals. The plans of study are customized with course titles and appropriate high school graduation requirements as well as college entrance requirements.

The objective of the Horticulture Program is to provide students with the necessary skills necessary for entry-level positions such as:

- Landscape Professionals (Designer, Contractor and/or Estimator)
- Greenhouse and Nursery Growers
- Arborists, Tree Trimmers and Pruners
- Grounds Management Professionals
- Pesticide Handlers, Sprayers, & Applicators
- Sustainable and Organic Farmers
- Hydroponic Growers
- Agricultural and Food Inspectors
- Parks and Recreation
- Floral Designer

The program, individual course objectives, and measurable learning outcomes have been aligned to national accreditation standards set forth by the National Association of Landscape Professionals (NALP). In addition, input from the College of DuPage Horticulture advisory committee and industry experts has been utilized to guide the delivery of education.

The Horticulture Program objectives include:

- Introduce students to occupations within the green industry
- Prepare students for successful employment through classroom and practical experiences while encouraging them to take pride in their work and establish a high standard of professionalism
- Encourage students to be responsible stewards of the environment by demonstrating and valuing sustainable practices
- Demonstrate the safe use of equipment, chemicals, and tools used in the industry
- Identify and explain benefits of professional organizations in the green industry
- Maintain strong industry contacts and link classroom knowledge with the industry through field trips and guest speakers

The Horticulture program consist of three A.A.S. Degrees and nine certificates.

Horticulture Degree Options:

Horticulture	Landscape Contracting & Management	Sustainable Urban Agriculture

Horticulture A.A.S Degree
The Horticulture program meets the needs of students entering the horticulture industry as well as those presently employed who wish to continue their professional growth. Besides providing horticultural knowledge and skills, the program emphasizes the business and management proficiency necessary to compete successfully in the horticulture industry. The Horticulture degree program requires a minimum of 64 credits in program requirements, program electives, and general education coursework.

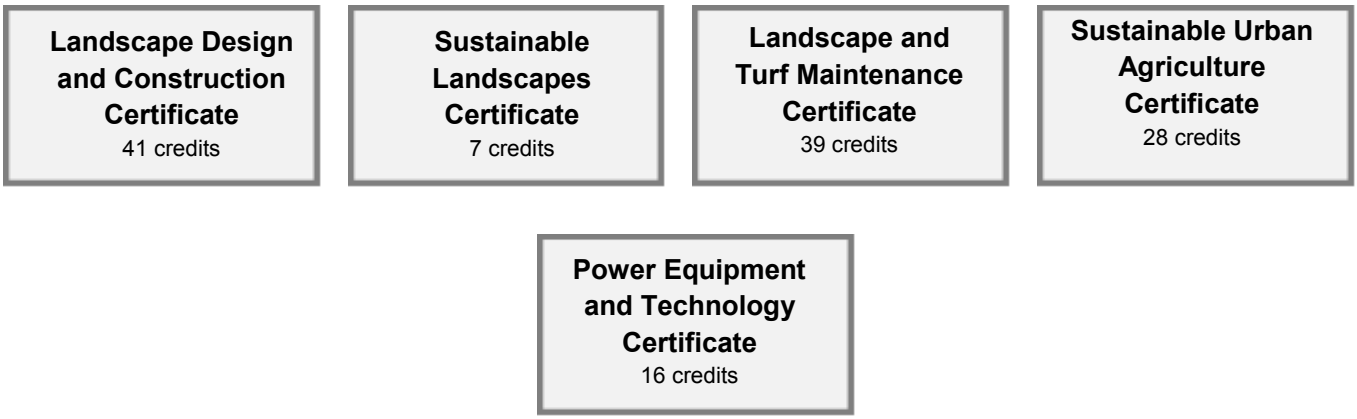
Landscape Contracting & Management A.A.S. Degree
The Landscape Contracting & Management program develops a student's ability to design, implement, and maintain landscape projects. Students build professional skills in plant healthcare, design, estimating, installation, and project management while earning an Associate in Applied Science degree. Landscape contracting graduates are well-placed to work in the growing field of sustainable landscaping, or enter a Bachelor degree program in Horticulture or related field. The Landscape Contracting and Management degree program requires a minimum of 71 credits in program requirements, program electives and general education coursework.

Sustainable Urban Agriculture A.A.S. Degree
The Sustainable Urban Agriculture program offers a hands-on approach to becoming a professional in the field of urban farming and sustainable urban agriculture. The goal of the program is to help society improve the health of its environment, food, and communities, give students practical experiences working alongside professional urban farmers and faculty and teach students how to critically analyze historical and current food systems to offer more sustainable solutions. Includes management and marketing techniques for urban agriculture food production systems. The Sustainable Urban Agriculture degree program requires a minimum of 66 credits in program requirements and general education coursework.

Horticulture Certificate Options:

** For students who do not wish to pursue an A.A.S. degree, certificate programs are offered that do not include general education courses. The following certificates are available:

Horticulture Certificate 15 credits	Floral Shop Management Certificate 24 credits	Nursery and Garden Center Management Certificate 35 credits	Greenhouse Management Certificate 24 credits



Labor Market Supply/Demand Information

Horticulture and Landscape Contracting & Management Degree Tracks:

According to the Department of Labor Statistics (DSL), College of DuPage is situated in a Chicago metropolitan area with the highest employment level of landscaping and grounds workers in the United States employing over 20,030 people with one of the highest annual mean wages in this occupation.

Employment in the Landscape Industry is projected to grow as fast as or faster than most occupations in DuPage County:

- Grounds Maintenance Workers is projected to grow 13.20 percent from 2012 to 2022 with 238 annual job openings in DuPage County. Nationally, employment is projected to grow 18.2%.
- Landscaping and Groudskeeping Workers is projected to grow 13.05 percent from 2012 to 2022 with 213 annual job openings in DuPage County. Nationally, employment is projected to grow 18 percent.
- Pesticide Handlers, Sprayers & Applicators is projected to grow 2 percent from 2012 to 2022 with 6 annual job openings in DuPage County. Nationally, employment is projected to grow 17.7%.
- Tree Trimmers & Pruners is projected to grow 5 percent from 2012 to 2022 with 11 annual job openings in DuPage County. Nationally, employment is projected to grow 26.3%.
- Grounds Maintenance Workers, All Others is projected to grow 3 percent from 2012 to 2022 with 9 annual job openings in DuPage County. Nationally, employment is projected to grow 11.8%.

Employment projections for surrounding DuPage Counties are also very high, enforcing the need for qualified workers. See attached supporting detail for employment projects in surrounding counties.

Sustainable Urban Agriculture Degree Track:

The labor market indicates job growth for individuals with degrees and extensive work experience in food, renewable energy and environmental specialties.

Purdue University along with the United States Department of Agriculture published the Employment Opportunities for College Graduates in Food, Renewable Energy, and the Environment. It was projected that the agricultural, food and renewable natural resources sectors of the US economy will generate an estimated 54,400 annual openings for individuals with baccalaureate or higher degrees in food, renewable energy, and environmental specialties between 2010 and 2015.

According to the USDA, certified organic acreage in the United States that includes cropland, pastureland, and rangeland quadrupled between 1992 and 2008 and the number of organic operations nearly tripled. Organic foods are now available in nearly all retail food stores and most consumers buy organic food at least occasionally. Growth in the industry seems likely to continue, and continued growth in demand will create new career opportunities.

There has been an increased interest in buying local foods. According to "Trends in U.S. Local and Regional Food Systems," a report to Congress, farmers markets have seen a 200% growth since 2007, regional food hubs a 300% increase and school districts with farm to school programs a 450% increase. In the nationally representative U.S. Grocery Shopper Trends Survey, conducted by a supermarket industry association, over 80 percent of surveyed grocery store shoppers reported purchasing local foods occasionally, while 9 percent reported purchasing local foods whenever possible (Food Marketing Institute, 2011). The survey also asked consumers' top reasons for buying locally grown foods in grocery stores. Freshness was the most frequent reason (with 83 percent) cited, support for the local economy was the second reason (with 79%) cited, and taste was the number three reason (with 56 percent) cited for buying local food (Food Marketing Institute, 2011). An earlier national survey, conducted in 2003, found an interest in healthy, safe, and fresh foods increased the likelihood of buying locally (Zepeda and Nie, 2012).

Many state legislators have also targeted support to local and regional food systems through statutes and programs focusing on urban agriculture and community gardens. Since 2007, several states and the District of Columbia have passed legislation that improves land access for urban agriculture (NCSL, 2014b). Programs provide tax incentives for urban land conversion to agricultural use and urban farming and gardening. Many more states have established committees to develop recommendations for expanding local food production. Farmer's markets are continually growing and becoming more popular. Today more than 30 states have passed laws in an effort to expand the presence of farmers' markets nationwide. Many of these laws not only support and grow local food systems, but they also work towards increasing access to healthy foods. This has brought an increase in local jobs in this industry.

A recent U.S. Department of Agriculture (USDA) report to Congress indicates that local and regional food sales in the U.S. totaled $6.1 billion in 2012— an increase from the reported $4.8 billion in 2008. This increase is a result of the selling of food from local farms, "for human consumption through both direct-to-consumer (e.g., farmers' markets) and intermediated marketing channels (e.g., sales to institutions or regional distributors)." The report findings provide an updated assessment of the growing trend in both the production and consumption of local food in the U.S.

Growing interest in the local foods movement and sustainability efforts across the nation is increasing the number of people working in the food system and related occupations. As the demand continues to rise for locally grown and produced foods, more jobs will be generated in this field of study. While job data for this type of work is difficult to measure across the 50 states, it is clear that food system jobs are gaining momentum across the country.

Additionally, according to IDES, the statewide annual compound growth rate in areas related to Agri-Hort Technology is up an average of 0.13%. The 2010-2020 projected outlook for additional jobs in the Agri-Hort specializations that includes Urban Agriculture indicates there will be an additional 44,503 jobs available by 2020.

State of Illinois

Occupational Employment Projections (Long-term) 2012-2022

Horticulture Related Occupations

Chicago Area

Code	Standard Occupational Classification (SOC) Title	Base Year Employment 2012	Year Employment 2022	Employment Change 2012-2022 Number	Percent	Average Annual Job Openings due to: Growth	Replacements	Total	Annual Compound Growth
DuPage County									
37-3000	Grounds Maintenance Workers	6,199	7,017	818	13.20	82	156	238	1.25
37-3011	Landscaping & Groundskeeping Workers	5,570	6,297	727	13.05	73	140	213	1.23
37-3012	Pesticide Handlers, Sprayers & Applicators	137	152	15	10.95	2	4	6	1.04
37-3013	Tree Trimmers & Pruners	235	285	50	21.28	5	6	11	1.95
37-3019	Grounds Maintenance Workers, All Other	257	283	26	10.12	3	6	9	0.97
Cook County									
37-3000	Grounds Maintenance Workers	22,174	23,526	1,352	6.10	135	559	694	0.59
37-3011	Landscaping & Groundskeeping Workers	19,740	20,948	1,208	6.12	121	498	619	0.60
37-3012	Pesticide Handlers, Sprayers & Applicators	414	423	9	2.17	1	10	11	0.22
37-3013	Tree Trimmers & Pruners	688	768	80	11.63	8	17	25	1.11
37-3019	Grounds Maintenance Workers, All Other	1,332	1,387	55	4.13	6	34	40	0.41
Kane County, Dekalb and Kendall Counties									
37-3000	Grounds Maintenance Workers	2,370	2,902	532	22.45	53	60	113	2.05
37-3011	Landscaping & Groundskeeping Workers	2,129	2,608	479	22.50	48	54	102	2.05
37-3012	Pesticide Handlers, Sprayers & Applicators	48	54	6	12.50	1	1	2	1.18
37-3013	Tree Trimmers & Pruners	71	94	23	32.39	2	2	4	2.85
37-3019	Grounds Maintenance Workers, All Other	122	146	24	19.67	2	3	5	1.81
Will County									
37-3000	Grounds Maintenance Workers	1,891	1,965	74	3.91	8	48	56	0.38
37-3011	Landscaping & Groundskeeping Workers	1,679	1,743	64	3.81	6	42	48	0.37
37-3012	Pesticide Handlers, Sprayers & Applicators	44	43	-1	-2.27	0	1	1	-0.23
37-3013	Tree Trimmers & Pruners	71	78	7	9.86	1	2	3	0.94
37-3019	Grounds Maintenance Workers, All Other	97	101	4	4.12	0	2	2	0.40
					Totals	557	1,645	2,229	

Advisory and Oversight

Changes to the Plan of Study will be made by visiting the high schools, working with Career to Education advisors at the College of DuPage and high schools, and also the Horticulture Advisory Board at the College of DuPage. The Horticulture Advisory Board meets once in the fall semester and once in the spring semester to help Horticulture faculty determine the direction of its curriculum, provide feedback on the content of our courses and certificates, and also discuss trends in the industry. Membership on this advisory board includes high school faculty who teach courses in Horticulture and industry specific experts. The Program of Study is a regular agenda item at these meetings. Annual meetings with High School Career Technical Education Chairs will be held to review progress and adjustment.

Data Reporting and Analysis

Annually, the Horticulture department conducts surveys of its graduates. The Horticulture program is implementing a survey to gain additional information to guide the actions of this plan.

Memorandum for Understanding
for
Program of Study in Horticulture
Between Metea Valley High School and College of DuPage

This Memorandum of Understanding (MOU) entered into this 4TH day of MAY, 2017 is between Metea Valley High School and College of DuPage (COD).

INITIATIVE
Metea Valley High School and College of DuPage form a cooperative relationship to develop and implement a Program of Study (POS) in order to ensure that all students have access to rigorous and relevant educational opportunities that prepare them for success in college and careers. This Program of Study in Horticulture, along with related career planning materials, will serve as a guide for students as they continue with their educational and career goals.

COLLABORATION
Through this Memorandum of Understanding, both institutions agree to work collectively and collaboratively to create an aligned educational structure through the Program of Study in Horticulture with the goal of improving student learning.

TERMINATION
Either party may dissolve this agreement by giving 180 days advance written notice to the cooperating institution's president or chief academic officer.

In WITNESS WHEREOF, the undersigned parties, by and through their duly authorized officers, have executed this agreement between the High School and College of DuPage.

For – **Metea Valley High School**

Title HORTICULTURE TEACHER — Date 5/4/17

Title PRINCIPAL — Date 5/4/17

For – **College of DuPage**

Title Coordinator/Professor — Date 5/11/17

Title — Date 5/15/17

Community College: College of DuPage

High School: Metea Valley High School

Program of Study: Horticulture A.A.S. Degree

CIP Code: 01.1103

Cluster: Agriculture, Food and Natural Resources

Pathway: Plant Systems

This Career Cluster Plan of Study (based on the Agriculture, Food and Natural Resources Career Cluster) can serve as a guide, along with other career planning materials, as learners continue on a career path. Courses listed within this plan are only recommended coursework and should be individualized to meet each learner's educational and career goals. *This Plan of Study, used for learners at an educational institution, should be customized with course titles and appropriate high school graduation requirements as well as college entrance requirements.

Education Level	Grade	CTE/Degree Major Courses	English	Mathematics	Science	Social Science	Other Required Courses / Recommended Electives	Work-Based Learning Opportunities
SECONDARY	9		English I	Algebra I	Biology	World Geography	PE 1.5 Credits Electives	
	10		English II	Geometry	Chemistry	History	Health (.5) PE (.5) 2 Credits Electives	
	11	*See Science Requirements*	English III	Algebra II	Introduction to Horticulture (Dual Credit available)	U.S. History	PE Consumer Ed (.5) 2 Credits Electives	
	12	*See Science Requirements*	English IV		Greenhouse (recommended) or APES (optional)	U.S. Government (.5)	PE 2.5 Credits Electives	
POSTSECONDARY	First Semester (15 credits)	Hort 1100 (3) Hort 1101 (3) Hort 1110 (3) Busin 1100 or Hort 1130 (3)	English 101 (3)					
	Second Semester (11 to 17 credits)	Program Elective (1 to 6)	Speech 1100 (3)	Math 1104 (3)	Biology 1110 or 1151 or Chemistry 1211 (4 to 5)			
	Summer Term (1 to 6 credits)	Program Elective (1 to 6)						
	Third Semester (6 to 9 credits)	Program Elective (3 to 9)				Social and Behavioral Sciences (3)		
	Fourth Semester (12 to 15 credits)	Hort 2221 (3) Program Elective (3 to 6)					Humanities and Fine Arts (3)	HORT 2863 (3) Internship

Community College: College of DuPage

High School: Metea Valley High School

Program of Study: Landscape Contracting & Management A.A.S Degree

CIP Code: 01.0605

Cluster: Agriculture, Food and Natural Resources

Pathway: Plant Systems

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SECONDARY	9		English I	Algebra I	Biology	World Geography/History	PE 1.5 Credits Electives	
	10		English II	Geometry	Chemistry	History	Health (.5) PE (.5) 2 Credits Electives	
	11	*See Science Requirements*	English III	Algebra II	Introduction to Horticulture (Dual Credit available)	U.S. History	PE Consumer Ed(.5) 2 Credits Electives	
	12	*See Science Requirements*	English IV		Greenhouse (recommended) or APES (optional)	U.S. Government (.5)	PE 2.5 Credits Electives	
POSTSECONDARY	First Semester (16 credits)	Hort 1100 (3) Hort 1101 (3) Hort 1109 (1) Hort 1111 (3) Hort 1130 (3)	English 1101 (3)					
	Second Semester (16 to 17 credits)	Hort 1113 (3) Hort 2211 (3)	Speech 1100 (3)	Math 1104 (3)	Biology 1110 or 1151 or Chemistry 1211 (4 to 5)			
	Summer Term (9 credits)	Hort 1114 (3) Hort 2231 (3) Program Elective (3)						
	Third Semester (15 credits)	Hort 1112 (3) Hort 2213 (3) Hort 2241 (3) Hort 2251 (3)				Econo 2201 or 2202 (3)		
	Fourth Semester (15 credits)	Hort 2235 (3) Hort 2242 (3) Hort 2261 (3)					Humanities and Fine Arts (3)	HORT 2863 (3) Internship

Community College: College of DuPage

High School: Metea Valley High School

Program of Study: Sustainable Urban Agriculture A.A.S Degree

CIP Code: 01.0308

Cluster: Agriculture, Food and Natural Resources

Pathway: Plant Systems

This Career Cluster Plan of Study (based on the Agriculture, Food and Natural Resources Career Cluster) can serve as a guide, along with other career planning materials, as learners continue on a career path. Courses listed within this plan are only recommended coursework and should be individualized to meet each learner's educational and career goals. *This Plan of Study, used for learners at an educational institution, should be customized with course titles and appropriate high school graduation requirements as well as college entrance requirements.

Education Level	Grade	CTE/Degree Major Courses	English	Mathematics	Science	Social Science	Other Required Courses / Recommended Electives	Work-Based Learning Opportunities
SECONDARY	9		English I	Algebra I	Biology	World Geography/History	PE 1.5 Credits Electives	
	10		English II	Geometry	Chemistry	History	Health (.5) PE (.5) 2 Credits Electives	
	11	*See Science Requirements*	English III	Algebra II	Introduction to Horticulture (Dual Credit available)	U.S. History	PE Consumer Ed (.5) 2 Credits Electives	
	12	*See Science Requirements*	English IV	Statistics	Greenhouse (recommended) or Earth Environment Science, or AP Environmental Science	U.S. Government (.5)	PE 1.5 Credits Electives	
POSTSECONDARY	First Semester (14 to 15 credits)	Hort 1100 (3) Hort 1101 (3) Hort 2308 (3)	English 1101 (3)		Biology 1110 or 1151 or Chemistry 1211 (4 to 5)			
	Second Semester (16 credits)	Hort 1141 (1) Hort 2300 (3) Hort 2305 (2)	Speech 1100 (3)	Math 1428 (3)	Biology 2150 (4)			
	Summer Term (1 to 6 credits)	Hort 1109 (1)			Earth 1135 (4)			
	Third Semester (14 credits)	Hort 1125 (1) Hort 1135 (1) Hort 2301 (3) Hort 2302 (3) Hort 2303 (2)		Math 1635 (4)				
	Fourth Semester (14 credits)	Hort 2253 (3) Hort 2304 (3) Hort 2307 (2)					Humanities and Fine Arts (3)	Hort 2383 (3) Internship

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