

# VoCATS

## Course Blueprint

### Agricultural Education

#### *6843 Horticulture II – Turfgrass Management*

**Public Schools of North Carolina**  
**State Board of Education • Department of Public Instruction**  
Curriculum and School Reform Services  
Division of Instructional Services

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This blueprint has been reviewed by business and industry representatives for technical content and appropriateness for the industry. Contact Benjie Forrest, North Carolina State University, Vernon James Research and Extension Center at 252-793-4428 ext. 130 for more information or [benjie\\_forrest@ncsu.edu](mailto:benjie_forrest@ncsu.edu).

## VoCATS Course Blueprint

A course blueprint is a document laying out the framework of the curriculum for a given course.

Shown on the blueprint are the units of instruction, the core competencies in each unit, and the specific objectives for each competency. The blueprint illustrates the recommended sequence of units and competencies and the cognitive and performance weight of the objective within the course.

The blueprint should be used by teachers to plan the course of work for the year, prepare daily lesson plans, construct instructionally valid interim assessments. Statewide assessments are aligned directly with the course blueprint.

For additional information about this blueprint, contact program area staff. For additional information about the VoCATS Competency Achievement Tracking System, contact program area staff or VoCATS, Career-Technical Education, Division of Instructional Services, North Carolina Department of Public Instruction, 6358 Mail Service Center, Raleigh, North Carolina 27699-5358, 919/807-3876, email: [rwelware@dpi.state.nc.us](mailto:rwelware@dpi.state.nc.us).

### Interpretation of Columns on VoCATS Course Blueprints

No.	Heading	Column Information
1	Comp # and Obj. # Unit	Comp=Competency number (three digits); Obj.=Objective number (unique course identifier plus competency number and two-digit objective number).
2	Titles/Competency and Objective Statements	Statements of unit titles, competencies per unit, and specific objectives per competency. Each competency statement or specific objective begins with an action verb and makes a complete sentence when combined with the stem "The learner will be able to..." (The stem appears once in Column 2). Outcome behavior in each competency/objective statement is denoted by the verb plus its object.
3	Time Hrs.	Space for teachers to calculate time to be spent on each objective based on the course blueprint, their individual school schedule and analysis of students' previous knowledge on the topic.
4&5	<u>Course Weight</u>  Cognitive  Performance	Shows the relative importance of each objective, competency, and unit. Weight is broken down into two components: cognitive and performance. Add the cognitive and performance weights shown for an objective in columns 4 and 5 to determine its total course weight. Course weight is used to help determine the percentage of total class time that is spent on each objective. The breakdown in columns 4 and 5 indicates the relative amount of class time that should be devoted to cognitive and performance activities as part of instruction and/or assessment.
6	Type Behavior	Classification of outcome behavior in competency and objective statements. (C=Cognitive ; P=Performance).
7	Integrated Skill Area	Shows links to other academic areas. Integrated skills codes: A=Arts; E=English Language Arts; CD=Career Development; CS=Information/Computer Skills; H=Healthful Living; M=Math; SC=Science; SS=Social Studies.
8	Core Supp	Designation of the competencies and objectives as Core or Supplemental. Competencies and objectives designated "Core" must be included in the Annual Planning Calendar and are assessed on the statewide assessments.

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**AGRICULTURAL EDUCATION**  
**COURSE BLUEPRINT FOR TURFGRASS MANAGEMENT:**  
**(Recommended hours of instruction: 135-180)**

Comp# Obj.#	Unit Titles/Competency and Objective Statements (The student will be able to:)	Time/Hours	Course Weight		Type Behavior	Integrated Skill Area	Core Supp
			Cognitive	Performance			
1	2	3	4	5	6	7	8
			100%				
			75%	25%			
	<b>Total Course Weight</b>						
<b>A.</b>	<b>LEADERSHIP</b>		6%	3%			
<b>001.00</b>	<b>Examine leadership organizations as related to the turfgrass industry</b>		2%	1%	<b>C3P</b>	<b>C</b>	<b>Core</b>
001.01	<i>Access opportunities for leadership development in turfgrass industry organizations.</i>		2%		C2	C	Core
001.02	<i>Examine the significance and meaning of ceremonies and traditions in agricultural organizations.</i>			1%	C3P	C	Core
<b>002.00</b>	<b>Demonstrate the process used in conducting business meetings in turfgrass management organizations.</b>		2%	1%	<b>C3P</b>	<b>C/SS</b>	<b>Core</b>
002.01	<i>Explain the role of parliamentary law in the conduction of business.</i>		2%		C3	C/SS	Core
002.02	<i>Demonstrate parliamentary abilities that would be used in a business meeting.</i>			1%	C3P	C/SS	Core
<b>003.00</b>	<b>Apply appropriate techniques in public speaking.</b>		2%	1%	<b>C3P</b>	<b>C</b>	<b>Core</b>
003.01	<i>Identify the parts of a speech.</i>		2%		C1	C	Core
003.02	<i>Deliver a speech.</i>			1%	C3P	C	Core
003.03	<i>Identify the various components of the techniques involved in agricultural sales.</i>				C1	C	Supp
003.04	<i>Demonstrate sales techniques with a 7 minute sales presentation on turfgrass products or services.</i>				C3P	C	Supp

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			Cognitive	Performance			
1	2	3	4	5	6	7	8
<b>B</b>	<b>RECORD KEEPING</b>		4%	2%			
<b>004.00</b>	<b>Examine the Supervised Agricultural Experience Component of the turfgrass management class.</b>		2%	1%	<b>C3P</b>	<b>C</b>	<b>Core</b>
004.01	<i>Identify the component parts of the Supervised Agricultural Experience Record used in the Turfgrass Management class.</i>		2%		C1	C	Core
004.02	<i>Correctly record entries in the SAE record.</i>			1%	C3P	M/C	Core
<b>005.00</b>	<b>Examine financial record-keeping systems used in the turfgrass industry.</b>		2%	1%	<b>C3P</b>	<b>M/C</b>	<b>Core</b>
005.01	<i>Define the terminology used in the financial record-keeping systems, such as asset, liability, inventory, etc.</i>		2%		C1	M/C	Core
005.02	<i>Correctly record entries in a financial record system.</i>			1%	C3P	M/C	Core
<b>C</b>	<b>FUNDAMENTALS OF TURFGRASS MANAGEMENT</b>		8%				
<b>006.00</b>	<b>Examine the principles of plant science as related to Turfgrass Management</b>		5%		<b>C3</b>	<b>SC</b>	<b>Core</b>
006.01	<i>Examine the structure and function of the vegetative and reproductive parts of a plant, including a typical turfgrass plant.</i>		3%		C3	SC	Core
006.02	<i>Investigate the major factors such as light, moisture, temperature, and elements affecting plants, including turfgrass.</i>		2%		C3	SC	Core
<b>007.00</b>	<b>Examine the principles of pest management as related to Turfgrass Management.</b>		3%		<b>C3</b>	<b>SC</b>	<b>Core</b>
007.01	<i>Analyze information found on chemical pesticide labels.</i>		2%		C3	SC/H	Core
007.02	<i>Compare Integrated Pest Management (IPM) and Best Turfgrass Management (BTM)</i>		1%		C3	SC/H	Core

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1	2	3	4	5	6	7	8
<b>D</b>	<b>ENVIRONMENTAL ISSUES AFFECTING TURF-GRASS MANAGEMENT</b>		11%				
<b>008.00</b>	<b>Explore the relationship of Turfgrass Management on Wildlife management practices.</b>		5%		<b>C3</b>	<b>SC</b>	<b>Core</b>
008.01	<i>Identify features of three different kinds of eco-systems.</i>		2%		C1	SC	Core
008.02	<i>Compare warm-blooded and cold-blooded animals.</i>		1%		C3	SC	Core
008.03	<i>Examine the implementation of a habitat improvement plan.</i>		2%		C2	SC	Core
<b>009.00</b>	<b>Explore the relationship of turfgrass management on water management practices.</b>		3%		<b>C2</b>	<b>SC</b>	<b>Core</b>
009.01	<i>Describe the four parts of a stream system.</i>		2%		C1	SC	Core
009.02	<i>Explain the Best Management Practices (BMP) to avoid polluting groundwater and streams.</i>		1%		C2	SC/H	Core
<b>010.00</b>	<b>Explore the relationship of turfgrass management on waste management practices.</b>		3%		<b>C2</b>	<b>SC/H</b>	<b>Core</b>
010.01	<i>Explain the carbon cycle.</i>		2%		C2	SC	Core
010.02	<i>Explain the processes that occur in a properly constructed compost pile.</i>		1%		C2	SC/H	Core
<b>E</b>	<b>BASIC LANDSCAPE PRINCIPLES IMPORTANT TO TURFGRASS MANAGEMENT.</b>		3%	4%			
<b>011.00</b>	<b>Examine the distinguishing characteristics of landscape plants.</b>		3%		<b>C3</b>	<b>SC</b>	<b>Core</b>
011.01	<i>Determine landscape plants using vegetative clues, location, and the dichotomous key.</i>		2%		C3	SC	Core
011.02	<i>Analyze plant propagation methods including seeds and cuttings.</i>		1%		C3	SC	Core
<b>012.00</b>	<b>Compare fertilization and pruning techniques used on landscape plants.</b>			4%	<b>C3P</b>	<b>SC</b>	<b>Core</b>
012.01	<i>Interpret fertilizer information as described on a fertilizer bag.</i>			2%	C3	SC/M	Core
012.02	<i>Execute proper pruning techniques on selected landscape plants.</i>			2%	C3P	SC	Core

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<b>F</b>	<b>LAWN CARE AND TURF PRODUCTION</b>		<b>14%</b>				
<b>013.00</b>	<b>Explore career opportunities in the lawn care and turf production industries.</b>		<b>2%</b>		<b>C1</b>	<b>C</b>	<b>Core</b>
013.01	<i>Describe the scope and development of the turfgrass industry.</i>		1%		C1	C	Core
013.02	<i>Describe the career opportunities available in the lawn care industry.</i>		1%		C1	C	Core
<b>014.00</b>	<b>Analyze basic turfgrass growth and development.</b>		<b>2%</b>		<b>C3</b>	<b>SC</b>	<b>Core</b>
014.01	<i>Analyze warm and cool season turfgrass in comparison with southern, northern, and transition lawns.</i>		2%		C3	SC	Core
014.02	<i>Analyze specific fertilizers used exclusively for golf courses and other sports fields.</i>				C3	SC	Supp
<b>015.00</b>	<b>Examine basic lawn care practices.</b>		<b>4%</b>		<b>C3</b>	<b>SC</b>	<b>Core</b>
015.01	<i>List the steps necessary for establishing or renovating a lawn.</i>		1%		C1	SC	Core
015.02	<i>Determine the benefits of mowing, fertilizing, watering and controlling soil compaction and thatch build-up in lawns.</i>		3%		C3	SC	Core
<b>016.00</b>	<b>Examine weed, disease and insect control as it applies to lawn care and turf production.</b>		<b>4%</b>			<b>SC/H</b>	<b>Core</b>
016.01	<i>Investigate lawn weeds and the proper methods of control.</i>		2%		C3	SC/H	Core
016.02	<i>Investigate lawn diseases and insects and their proper methods of control.</i>		2%		C3	SC/H	Core
<b>017.00</b>	<b>Examine Turf Production</b>		<b>2%</b>		<b>C1</b>	<b>SC</b>	<b>Core</b>
017.01	<i>Describe the steps of normal sod production.</i>		1%		C1	SC	Core
017.02	<i>Describe the scope, size, and main areas of turfgrass seed production.</i>		1%		C1	SC	Core
017.03	<i>Establish an area of turfgrass by using seeds, sod, plugs, and sprigs.</i>				C3P	M	Supp

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<b>G</b>	<b>GOLF COURSE MANAGEMENT</b>		<b>16%</b>				
<b>018.00</b>	<b>Explore career opportunities in the golf course industry.</b>		<b>3%</b>		<b>C3</b>	<b>C</b>	<b>Core</b>
018.01	<i>Describe the scope and development of the golf course industry.</i>		2%		C1	C	Core
018.02	<i>Compare the career opportunities and skills needed in golf course management.</i>		1%		C3	C	Core
<b>019.00</b>	<b>Examine basic golf course maintenance practices</b>		<b>6%</b>		<b>C3</b>	<b>SC</b>	<b>Core</b>
019.01	<i>Describe the various areas of a golf course, including tees, fairways, putting greens, roughs, bunkers, and hazards.</i>		2%		C1	SC	Core
019.02	<i>Determine the practices and benefits of mowing, fertilizing, irrigating, cultivating, and regulating golf courses.</i>		4%		C3	SC	Core
019.03	<i>Cut a cuphole for flag placement.</i>				C3P	M	Supp
<b>020.00</b>	<b>Examine golf course pests and their control.</b>		<b>7%</b>		<b>C3</b>	<b>SC/H</b>	<b>Core</b>
020.01	<i>Investigate golf course diseases, weeds, and insect pests.</i>		6%		C3	SC/H	Core
020.02	<i>List the advantages of Integrated Pest Management (IPM) in golf course management.</i>		1%		C1	SC/H	Core
<b>H</b>	<b>SPORTS TURF AND TURF IRRIGATION</b>		<b>6%</b>	<b>6%</b>			
<b>021.00</b>	<b>Explore career opportunities and management practices in the sports turf industry.</b>		<b>6%</b>	<b>2%</b>	<b>C3P</b>	<b>C</b>	<b>Core</b>
021.01	<i>Compare the career opportunities and skills needed in sports field management.</i>		2%		C3	C	Core
021.02	<i>Explain the various types of sports fields and their features.</i>		2%		C2	C	Core
021.03	<i>Describe the 5 major turfgrasses used for sports fields and their characteristics.</i>		2%		C1	C	Core
021.04	<i>Layout and prepare various sports fields.</i>			2%	C3P	M	Core

Comp# Obj.#	Unit Titles/Competency and Objective Statements (The student will be able to:)	Time/Hours	Course Weight		Type Behavior	Integrated Skill Area	Core Supp
			Cognitive	Performance			
1	2	3	4	5	6	7	8
<b>022.00</b>	<b>Examine basic sports turf irrigation practices.</b>			<b>4%</b>	<b>C3P</b>	<b>SC</b>	<b>Core</b>
022.01	<i>Determine the layout of a sport turf site and the type of system and equipment needed to properly water it.</i>			2%	C3P	SC/M	Core
022.02	<i>Analyze the electrical, plumbing, controller, and valve systems for an irrigation system used for the sports turf industry.</i>			2%	C3P	M	Core
<b>I</b>	<b>TURF EQUIPMENT AND MAINTENANCE</b>		<b>5%</b>	<b>7%</b>			
<b>023.00</b>	<b>Compare small gasoline and diesel engines used for turf.</b>		<b>3%</b>		<b>C3</b>	<b>M</b>	<b>Core</b>
023.01	<i>Identify the basic components of a small gasoline engine used on turf.</i>		1%		C1	M	Core
023.02	<i>Describe the differences between fuels and lubricants used in turf diesel and gasoline engines.</i>		2%		C-1	C	Core
023.03	<i>Perform various maintenance procedures on small engines.</i>				C3P	M	Supp
<b>024.00</b>	<b>Examine reel type and rotary mowers used on turf.</b>			<b>5%</b>	<b>C3P</b>	<b>M</b>	<b>Core</b>
024.01	<i>Service various reel type and rotary mowers and where they are used on the golf course.</i>			3%	C3P	M	Core
024.02	<i>Demonstrate the proper use of hand tools used to maintain mowers.</i>			2%	C3P	M	Core
024.03	<i>Demonstrate the proper use of a weedeater.</i>				C3P	M	Supp
<b>025.00</b>	<b>Use a boom sprayer properly.</b>		<b>2%</b>	<b>2%</b>	<b>C3P</b>	<b>M</b>	<b>Core</b>
025.01	<i>Identify the basic components of a boom sprayer.</i>		2%		C1	C	Core
025.02	<i>Calibrate a boom sprayer properly.</i>			2%	C3P	M	Core
025.03	<i>Calibrate a hand sprayer properly.</i>				C3P	M	Supp
<b>J</b>	<b>HUMAN RESOURCE AND FINANCIAL MANAGEMENT IN THE TURF INDUSTRY</b>		<b>2%</b>	<b>3%</b>			
<b>026.00</b>	<b>Examine the recruiting and people skills needed in the turf industry.</b>		<b>1%</b>	<b>1%</b>	<b>C3P</b>	<b>C</b>	<b>Core</b>

Comp# Obj.#	Unit Titles/Competency and Objective Statements (The student will be able to:)	Time/Hours	Course Weight		Type Behavior	Integrated Skill Area	Core Supp
			4	5			
1	2	3	4	5	6	7	8
026.01	Write a job announcement for an opening on a golf course.			1%	C3P	C	Core
026.02	Describe the techniques used to motivate a turf maintenance crew.		1%		C1	C	Core
<b>027.00</b>	<b>Examine the financial and interviewing skills needed in the turf industry.</b>		1%	2%	<b>C3P</b>	<b>M</b>	<b>Core</b>
027.01	Identify the major expenses in golf course management.		1%		C1	M	Core
027.02	Write a resume for a turf industry career.			2%	C3P	C	Core