

CTE

INNOVATION
EDUCATION
OPPORTUNITY

NATURAL RESOURCE SCIENCE

2020-21

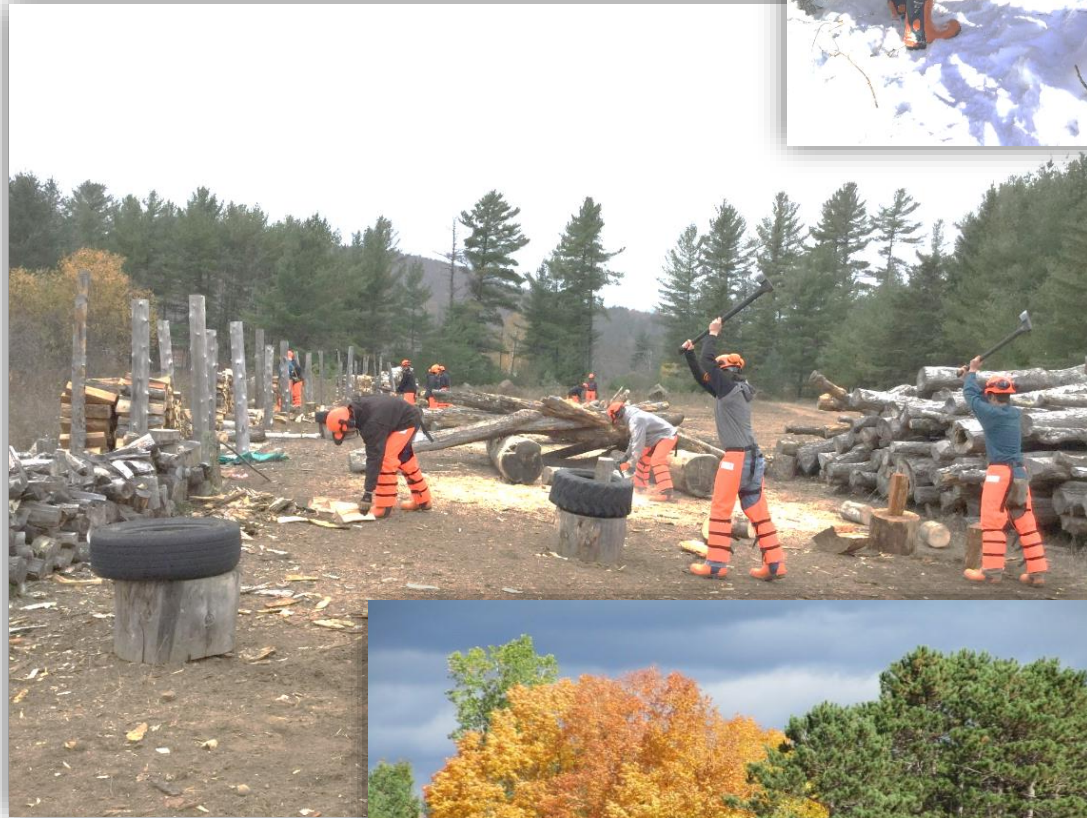
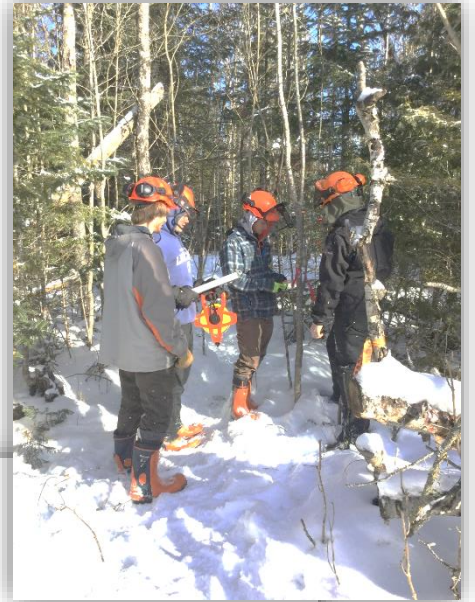
COURSE SYLLABUS

CAREER AND TECHNICAL EDUCATION
FRANKLIN-ESSEX-HAMILTON BOCES • ADIRONDACK EDUCATIONAL CENTER

CTE IS A DIVISION OF THE FEH BOCES
711 NY-3 • SARANAC LAKE, NEW YORK 12983 • 518-891-1330
WWW.FEHB.ORG



NATURAL RESOURCE SCIENCE



Natural Resource Science

Course description	Natural Resource Science is a two-year program that aligns with the Society of American Foresters Programs in Forest Technology standards and procedures. The program emphasizes forest ecology and silviculture, forest management, woods safety, forest land usage, forest protection, fish and wildlife management, forest recreation, trends in urban forestry, and current and emerging environmental conservation issues. Students spend time outdoors in "land labs" that enable students to participate in approved projects that put theory into practice. There are a number of different types of land labs from entrepreneurial endeavors to community service projects.
Prerequisites	Students will be in an outdoor environment and on their feet for long periods of time. This course also involves intense physical activity; therefore, students should be in good physical condition. An understanding of math, English, science, keyboarding and basic computer technology is recommended.
Program length	2-year, half-day program
Location	Adirondack Educational Center (AEC)
Course objective	Natural Resource Science is designed to operate using the best management practices of the industry. Students address environmental concerns and productivity issues. They progressively build competencies in both knowledge and skill. Students will be prepared for workplace skills such as team-work, problem solving, decision making, and time management. In addition, they will acquire the skills necessary to work safely in the conservation field. Students will also experience the outdoors in all types of weather conditions. Diversified instructional strategies will be used to prepare them to be competent and flexible in their work environment.
Course topic outline	<p>The Natural Resource Science curriculum is aligned with the Society of American Foresters curriculum. Topics include the following:</p> <ul style="list-style-type: none">• Introduction to Forestry• Forest Management• Forest Ecology and Silviculture• American Red Cross First Aid, CPR and AED• Chainsaw Operation, Safety, and Maintenance• Timber Harvesting and Reforestation• Measurements of Forest Resources• Heavy Machine Operation• Surveying• Soil and Water Conservation• Arboriculture/Urban Tree Management• Fish and Wildlife• Forest Recreation• Greenhouse Management and Operations• Sawmill Operations
Student course requirements	In order for the student to gain national recognition he/she must obtain at least 85% or better for six marking periods. (No more than thirteen absences in six marking periods.)



CTE

Natural Resource Science

Textbooks & resources Students receive unit reference sheets, safety materials (including OSHA regulations), work sheets and unit content information. In addition, owner's manuals (QDMA Skidder, 450H Dozer) and reference guides are used in the class.

Textbooks and Field Guides:

Burton, L. Devere. Fish & Wildlife: Principles of Zoology and Ecology, 2009.

Burton, L. DeVere. Introduction to Forest Science, 3rd ed., 2012.

Deal, Kevin H. Wildlife & Natural Resource Management, 4th ed. 2016.

Forestry Handbook

Know Your Trees (CCE field guide)

Science of Earth Systems

NYS Logger Training Booklets:

BMP for Water Quality

Fatality Assessment and Control Evaluation Program (NYFACE)

Forest Ecology and Silviculture

Logger's Safety Field Guide, New York

Websites:

American Tree Farm System

Empire State Forest Products Association

International Society of Arboriculture

New York Forest Owners Association

New York State Department of Environmental Conservation, Cornell Cooperative Extension

US Forest Service

Assessments Students are assessed on daily classroom attendance, participation, laboratory work, exams and quizzes, and a two-part final exam. The students are also required to complete a portfolio. The technical assessment exam (written and performance examinations in Conservation) is based on the National Occupational Competency Testing Institute (NOCTI).

Grading system Quizzes 15%
Projects 40%
In-class Assignments 20%
Tests 20%
Homework/Journal 5%

Attendance & class participation The FEH BOCES attendance policy requires students to conform to their component district's policy. For those times when it is necessary to be absent, a written note from the parent/guardian will be expected the next class day.

Activities/labs/projects/clinics Students work on community projects throughout the year at numerous recreation and nature trail sites, such as Dewey Mountain and Mt. Pisgah Recreational area. The Saranac Lake Village Manager and the Highway Superintendent work directly with students to implement large-scale forestry projects and urban forestry planning on village lands.

Adirondack Education Center students also work directly with the DEC, APA, and Lean-to Rescue to build and plan for lean-tos that are placed on New York State forest land, such as in the High Peaks and on Middle Saranac Lake.

Required materials Students need to provide their own work clothes and gloves.

Natural Resource Science

Industry certification Upon completion of the two-year Natural Resource Science program, students will have had the opportunity to receive the following certifications or licenses:

- First Aid, CPR, AED
- Game of Logging Precision tree felling levels 1 and 2
- New York Trained Logger Certification
- VISTA Backhoe Loader Safety
- VISTA Crawler/Dozer Safety
- OSHA 10-Hour Occupational Safety
- NOCTI Conservation

Articulation agreements Each Career and Technical Education (CTE) program prepares students for the world of work and for the rigors of post-secondary coursework. Each program partners with area colleges to obtain articulation agreements that allow for advanced standing or the issuance of credit to those CTE students meeting all program requirements and articulation agreement standards. FEH BOCES has an articulation agreement in Natural Resource Science with the following colleges:

- Paul Smiths College
- NCCC

**Related careers/
Post-secondary training** Students successfully completing the Natural Resource Science program can seek entry-level positions in forestry/urban tree/logging industry, equipment operator, commercial truck driver, consultant forester, conservation officer, forest ranger, park ranger, wildlife technician, soil and water specialist, surveying aide, environmental scientist, or natural resource educator.

**ELA/math/science credit
integrated academic
overview** Each CTE program offered at FEH BOCES includes four major curriculum elements for students to receive credits: CTE, math, science, and English Language Arts (ELA). CTE instructors collaborate with certified science and math instructors. The ELA curriculum element uses a co-teaching model between the CTE subject experts and a certified English instructor. Topics in English, science, and math are tied to specific business and industry course content to show students how academic material relates to real-world business knowledge and skill. English, science, and math elements are taught at the commencement level and meet Next Generation Standards for students to obtain one (1) credit for each over a two-year period.

Curriculum Elements	11th Grade Credits	12th Grade Credits
Career and Technical Education (CTE)	2.5	2.0
Commencement Level Math	0.5	0.5
Commencement Level Science	0.5	0.5
English Language Arts	0.5	0.5

**Career & financial
management credit
overview** Each CTE program offered at FEH BOCES offers a career & financial management credit to all students who successfully complete a CTE program. This curriculum element is composed of two major parts: (A) Introduction to Occupations and (B) Nature of Industry. Part A is delivered through integrated class assignments, while Part B is automatically delivered due to the nature of CTE.

CTE

Natural Resource Science

Student-affiliated organizations

There are different student-affiliated organizations that the students have the opportunity to be involved with, including Student Council and National Technical Honor Society.

National Technical Honor Society nomination requirements

- Maintain a cumulative CTE average of 85% or higher based upon the first six quarter grades.
- Maintain a record of excellent attendance in CTE (13 days over the first six quarters).
- Plan to pursue a career in their field of training.
- Maintain an outstanding record of employability skills as judged by the CTE instructor.
- Nomination by the CTE instructor with no reservations.
- Instructor nomination must include a “yes” answer to the following characteristics established by the national office: follows instructions, safety conscious, dependable, trustworthy, responsible, honest, works well with others, takes pride in work, exhibits a good attitude, exhibits leadership, and exhibits good citizenship.

WBL experiences & requirements

Each CTE program has a Work-Based Learning experience. This means that all students prior to the end of the second year are given the opportunity to be exposed to the operation of a business and specific job duties related to careers in their CTE area. This internship is designed to connect the skills and knowledge learned in the CTE classroom with the real-world requirements of a business. Students must demonstrate good attendance, attitude, internship records, and work ethics, as well as respect for others and property.

NOTES:

This image shows a blank sheet of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

MISSION:

Provide high-quality educational programs and shared services for our students, schools and communities.

VISION:

Maximize the potential of each individual so today's learners become tomorrow's skilled professionals.

CORE BELIEFS:

- Everyone can learn and grow.
- We place students at the forefront of all decisions.
- We model integrity, positivity, hard work and professionalism.
- We value creativity and innovation.
- We embrace diversity and treat each other with respect, compassion and dignity.
- We offer multiple pathways to success.
- We build effective partnerships through collaboration and shared decision-making
- Safety is everyone's responsibility.





The Franklin Essex Hamilton BOCES does not discriminate on the basis of an individual's actual or perceived race, color, religion, creed, ethnicity, national origin, citizenship status, age, marital status, partnership status, disability, predisposing genetic characteristics, sexual orientation, gender (sex), military status, veteran status, domestic violence victim status or political affiliation, and additionally does not discriminate against students on the basis of weight, gender identity, gender expression, and religious practices or any other basis prohibited by New York State and/or federal non-discrimination laws in employment or its programs and activities.

The District provides equal access to community and youth organizations. Inquiries regarding the District's non-discrimination policies should be directed to:

Civil Rights Compliance Officer, 23 Husky Lane, Malone, NY 12953
(518) 483-6420
civilrightscompliance@fehbo.org

CTE IS A DIVISION OF THE FEH BOCES
711 NY-3 • SARANAC LAKE, NEW YORK 12983 • 518-891-1330
WWW.FEHB.ORG

