Russellville High School

Agriscience Education
Plant Systems Program

Course Syllabus
for
Forestry

Instructor – Mr. Nichols

07/24/17

Course Description

Forestry is a course designed to enable students to become knowledgeable of forestry and wood technology. Students acquire an appreciation for increased emphasis on managing and conserving forests for the future. Topics include career opportunities, safety, history, dendrology, tree measurement, mapping, silviculture, forest products, and forest protection.

Content standards for this course are not intended to serve as the entire curriculum. Teachers are encouraged to expand the curriculum beyond the limits of these content standards to accommodate specific community interests and utilize local resources. This course encourages critical thinking, use of the scientific method, integration of technology, development of student leadership skills, and application of knowledge and skills related to practical questions and problems. Safety concepts are integrated into instruction to the maximum extent possible.

Career and technical student organizations are integral, co-curricular components of each career and technical education course. These organizations serve as a means to enhance classroom instruction while helping students develop leadership abilities, expand workplace-readiness skills, and broaden opportunities for personal and professional growth.

Course Goals

This course encourage critical thinking skills, use of the scientific method, integration of technology, development of student leadership skills, and application of knowledge and skills related to practical questions/problems. Safe field and laboratory investigations should be used in instruction to maximum extent possible to illustrate scientific concepts and principles and to support inquiry instruction.

This course emphasizes SAEP and FFA opportunities that develop students' potential for premier leadership, personal growth, and career success.

Career Technical Student Organization (CTSO): FFA

FFA is a dynamic youth organization that is an intra-curricular component of an agriscience program. FFA offers a variety of opportunities for members to get involved through leadership conferences, scholarship opportunities, and competitive events. The FFA Mission is to make a positive difference in the lives of young people by developing their potential for premier leadership, personal growth, and career success through agriscience education. To find out more about FFA, please visit www.alabamaffa.org or www.ffa.org.

Prerequisites

None

Essential Questions

1. What criteria should a student use in selecting a career path?
2. What resources are available to students conducting a job search?
3. What are some of the hazards faced by individuals working in forestry?
4. What is some of the safety equipment used by foresters?
5. How does the forestry industry influence the lives of citizens in Alabama and the world?
6. What early developments influenced the forest industry of today?
7. What are the major parts of a tree and their functions?
8. How are trees classified?
9. What are the major species of trees and their characteristics?
10. What are the common units of measure used in forestry?
11. How do I determine the diameter of a standing tree?
12. How do I determine pulpwood and sawlog height?
13. How do I determine tree volume?
14. What are the methods of cruising timber?
15. How do I determine what products may be obtained from a tree?
16. How do I decide which trees should be left, harvested, or deadened?
17. What do the symbols and markings on a map mean?
18. How do I locate my position on a map?
19. How can I determine distance on a map?
20. What are ways to determine acreage?
21. How can a GPS be used in forestry?
22. What is legal land description?
23. What are the different systems of surveying land?
24. What are the methods of harvesting trees?
25. How are trees harvested?
26. What is the difference in natural and artificial reforestation?
27. How should I plant and care for seedlings?
28. Why is prescribed burning important?
29. What effects fire behavior?
30. What are the chemical characteristics of wood?
31. What are the physical characteristics of wood?
32. What are forest products?

33. How are lumber and other wood products produced and processed?
34. How is lumber graded and selected for use?
35. What preservatives are used for wood?
36. What is the fire triangle?
37. What are the most common sources of forest fires?
38. Are there different types of forest fires?
39. What effect have forest fires had on the types of forests in the United States?

Credit
One Carnegie Unit

Student Fees
$25.00

Evaluation/Assessment
Student grades will be based on a variety of daily exercises averaged with their test scores on the individual units of instruction. Forty percent of the final grade per grading period (9 weeks) will be based on daily work to insure that students will have ample opportunity to maintain adequate course grades. Fifty percent of the grade will be based on test grades. Daily work will include but not be limited to objective exercises, class participation, group work, shop/lab projects, and other forms of assessment that promote higher order thinking skills. Ten percent of the final grade per grading period will be based on employability skills. Semester grades will be calculated according to the method approved by school administration which will include mid-term and final exam scores.

Grading Method:

Nine Weeks' Grade:

A. 10% Employability Skills
B. 40% Daily Work
C. 50% Tests

10% Employability Skills:

On the job, it is so important for you to be organized, to be able to follow directions, to be at work on time, to have good attendance, to keep neat work areas, and to maintain professional behavior. In an effort to help build these characteristics in each agriscience student, part of every nine weeks' grade will be "Employability Skills". Everyone begins each nine weeks with a grade of 100 for Employability Skills. It is so easy to keep the 100 and let this portion of your total grade help your average; or, you can lose points from this part of your grade and hurt your average for the following reasons:

1. Unexcused Absence from class = -2 points per violation
2. Tardy to class = -2 points per violation
3. Coming to class without proper supplies = -2 points per violation
4. Failure to clean up your work area and leave it neat = -2 points per violation
   (Chair pushed under table, Paper/Trash removed from table, Clean-up from shop projects)
5. Not remaining seated in assigned seat until the bell rings and do not stand at the door = -5 points per violation
6. Any disorderly conduct that interferes with our classwork = -2 points per violation
7. Not wearing all required safety equipment (PPE) = -3 points per violation

8. Returning to classroom from assigned lab area without permission = -5 points per violation
9. Repeated misbehavior will result in a **zero** employability grade

RHS Grading Scale

A = 90-100
B = 80-89
C = 70-79
F = 69 and below

Culminating Product(s)

1. Students will become hirable citizens after gaining the knowledge of careers.
2. Students will master shop safety by identifying mock safety hazards in the shop and by passing the safety portion of the lesson with 100 on the shop safety test.
3. Design a timeline charting the historical advancements of the forest industry.
4. Students will develop a collage of leaf samples from the available trees on the CDE.
5. Measure trees and do various calculations necessary in the forest industry.
6. Interpret a topographical map, measure distances in various ways, and be familiar with the uses of a GPS in forestry.
7. Understanding of the chemical and physical properties, products, grading and wood treatment processes that are associated with the forest products industry.
8. Understanding the importance and methods of fire protection.

Available Student Industry Credential(s)

1. Urban Forestry = CRI
2. Alabama Hunter Education Certification = Stackable credential

For More Information
on the Agriscience Program at Russellville
High School Contact:

Donnie Nichols
Agriscience Instructor
256-331-2110

Natalie Bendall
Career/Technical Coordinator
256-331-2112 or EXT. 1302

No person shall be denied employment, be excluded from participation, be denied the benefits of, or subjected to discrimination in any program or activity on the basis of race, color, disability, sex, religion, national origin, or age by the Russellville City School System. Equal access shall be available to the Boy Scouts and other designated youth groups. The Superintendent, Heath Grimes, has been designated as the person coordinating the Russellville City Schools' effort to implement this non-discriminatory policy. If there are questions or concerns, contact him by phone at 331-2000, by e-mail at heath.grimes@rcs.k12.al.us , or in writing at 1945 Waterloo Road, Russellville, AL 35653.

Heath Grimes, Title IX Coordinator
Russellville City Schools
1945 Waterloo Road
Russellville, AL 35653
256-331-2000
heath.grimes@rcs.k12.al.us

Claudia Askew, 504 Coordinator
Russellville City Schools
1945 Waterloo Road
Russellville, AL 35653
256-331-2107
claudia.askew@rcs.k12.al.us

Forestry

Forestry is a course designed to enable students to become knowledgeable of forestry and wood technology. Students acquire an appreciation for increased emphasis on managing and conserving forests for the future. Topics include career opportunities, safety, history, dendrology, tree measurement, mapping, silviculture, forest products, and forest protection.

Content standards for this course are not intended to serve as the entire curriculum. Teachers are encouraged to expand the curriculum beyond the limits of these content standards to accommodate specific community interests and utilize local resources. This course encourages critical thinking, use of the scientific method, integration of technology, development of student leadership skills, and application of knowledge and skills related to practical questions and problems. Safety concepts are integrated into instruction to the maximum extent possible.

This course may be taught as a one-credit or half-credit instructional-hour course. For a half-credit course, standards 1, 2, 3, 4, 5, 6, 8, 9, 11, and 13 must be included.

Career and technical student organizations are integral, cocurricular components of each career and technical education course. These organizations serve as a means to enhance classroom instruction while helping students develop leadership abilities, expand workplace-readiness skills, and broaden opportunities for personal and professional growth.

Career Opportunities

Students will:

1. List employment opportunities in forestry.

Safety

2. Identify potential hazards in Alabama forests, including topographical hazards, stinging insects, venomous spiders and snakes, and poisonous plants.

History

3. Describe historical events that have influenced forestry in Alabama and the United States.
    - Comparing roles of Alabama forestry agencies

Dendrology

4. Describe major parts of a tree and their functions.

5. Identify common forest trees of Alabama.
    - Comparing hardwood and softwood trees
    - Comparing gymnosperms and angiosperms

Tree Measurement

6. Demonstrate the use of tree measurement tools.
   Examples: Biltmore stick, hypsometer, clinometer, tree calipers, tree diameter tape

   - Describing techniques for measuring diameter at breast height (DBH)
   - Describing techniques for measuring total tree height
   - Describing techniques for measuring pulpwood at marketable height
   - Describing techniques for measuring sawlogs

7. Determine the volume of standing timber.
   Examples: using Doyle Log Rule, Scribner Log Rule, and International Log Rule

   - Calculating forest product value using cords, board feet, and cubic feet

8. Describe various methods for cruising timber.
   Examples: line plot, strip, total

   - Grading a tree for defects, size, and type to determine possible products
   - Determining techniques for timber stand improvement (TSI)

Mapping

9. Interpret map characteristics and features.
   - Locating various positions on a map
   - Using a scale to determine distance on maps
   - Identifying markings on a map
     Examples: colors, symbols, contour lines

10. Demonstrate the use of mapping tools, including direction, elevation, and distance-reading tools.
    - Locating land corners and boundaries
    - Determining acreage using a legal land description, topographic map, and a hand compass
    - Describing how topographical maps combined with aerial photographs are used to identify the location of specific property
    - Describing uses of a global positional system (GPS) in forestry
    - Describing a legal land description, including townships, ranges, and sections
    - Comparing systems of land surveying
      Examples: rectangular, metes and bounds

Silviculture

11. Compare methods of harvesting timber, including seed tree cutting, clear cutting, selection cutting, and shelter wood cutting.
    - Identifying common harvesting techniques in forestry
      Examples: felling, bucking, skidding, loading

12. Compare artificial and natural reforestation methods.
    - Identifying sources of tree seedlings
    - Selecting methods for the handling and care of seedlings
    - Evaluating tree planting methods

13. Explain the importance of prescribed burning.

Forest Products

14. Describe chemical and physical properties of wood.

15. Identify lumber, timber, and paper products produced from wood.
    - Describing the process by which various forest products are made

16. Analyze characteristics of lumber to determine grade.
    Examples: decay splits, milling defects, knots, stains

17. Describe wood treatment processes.
    Examples: preservative oils, water-borne salts, pressure treatment techniques

Forest Protection

18. Identify causes of forest fires.
    - Identifying fire-fighting tools and methods