Forest Ecology Study Concepts:

1. Understand the fundamental life processes of plants including photosynthesis and transpiration.
2. Understand the function of each part of a tree.
3. Understand basic ecological concepts and factors affecting them, including food webs, succession, competition, adaptation, symbiosis, the relationship between soil and forest types, tree communities and regeneration.
4. Understand how the following issues are affected by forest health and management: biological diversity, wildlife habitat, water and air quality, soil health, fire, and recreation.
5. Understand how forests are managed to yield timber and what products are derived from trees.
6. Identify specific of trees and shrubs through the use of a key. Identify common and Latin names for the following common trees without a key, and know their approximate ranges in Oregon:

- Douglas-fir
- Sitka Spruce
- Western hemlock
- Port-Orford-cedar
- Junipers
- Ponderosa pine
- Western white pine
- Lodgepole pine
- Redwood
- Englemann spruce
- Western Redcedar
- Incense cedar
- Pacific yew
- Western larch
- Birches
- True Firs (6)
- Cottonwoods
- Vine maple
- Bigleaf maple
- Oregon white oak
- Sugar pine
- Red alder
- Oregon ash
- Poplars

7. Understand the cause/effect relationship of factors affecting tree growth and forest development (climate, insects, microorganisms, etc.) (i.e. "reading tree rings").
8. Understand the value of trees in urban and suburban settings and factors affecting their health and survival.
9. Identify, understand the life cycles, and know common control techniques for the following insect and pests of trees in Oregon: http://students.washington.edu/melliott/host.html

- Western Pine Beetle
- Flat Headed Borers
- Dwarf Mistletoe
- Spruce Budworm
- Armillaria
- Heartrot
- White Pine Blister Rust
- Swiss needle cast

10. Understand the role of natural and human caused fires on an ecosystem.
11. Understand basic forest management concepts and tools such as: how various silvicultural practices are utilized, the use of tree measuring devices, and best management practices. Use the following forestry tools: clinometer, diameter tape, woodland stick, and prism.
12. Interpret all aspects of USGS quad maps; understand legal descriptions and associated terms such as section, township, and range.
13. Identify complex factors which influence forest management decisions (economics, social, and ecological).
14. Understand how wildlife habitat relates to forest communities, forest species, forest age structure, snags and den trees, availability of food, and riparian zones.
15. Apply silviculture concepts and methods to develop general management recommendations for a particular situation and management goal.