CURRICULUM MAP
BOTANY

Weeks 1-3	Weeks 4-6	Weeks 7-9	Weeks 10-12	Weeks 13-15	Week 16-18
12-11. Trace the historical development of a biological theory or idea (e.g., genetics, cytology and germ theory). 12-12. Describe advances in life sciences that have important, long-lasting effects on science and society (e.g., biotechnology). **Credits - 0.5** **Prerequisite – Biology** **Single-Block** **One Semester**	12-2. Explain why specialized cells/ structures are useful to plants and animals (e.g., stoma, phloem, xylem, blood, nerve, muscle, egg and sperm). 12-7. Relate diversity and adaptation to structures and functions of living organisms at various levels of organization. 12-10. Explain additional components of the evolution theory, including genetic drift, immigration, emigration and mutation.	12-4. Explain that carbon-containing molecules can be used to assemble larger molecules with biological activity (including proteins, DNA, sugars and fats). In addition, the energy stored in bonds between the atoms (chemical energy) can be used as sources of energy for life processes. 12-9. Explain why and how living systems require a continuous input of energy to maintain their chemical and physical organization. Explain that with death and the cessation of energy input, living systems rapidly disintegrate toward more disorganized states.	11-6. Predict some possible impacts on an ecosystem with the introduction of a non-native species. 11-8. Recognize that populations can reach or temporarily exceed the carrying capacity of a given environment. Show that the limitation is not just the availability of space but the number of organisms in relation to resources and the capacity of earth systems to support life. 11-9. Give examples of how human activity can accelerate rates of natural change and can have unforeseen consequences. 12-4. Explain that carbon-containing molecules can be used to assemble larger molecules with biological activity (including proteins, DNA, sugars and fats). In addition, the energy stored in bonds between the atoms (chemical energy) can be used as sources of energy for life processes. 12-8. Based on the structure and stability of ecosystems and their nonliving components predict the biotic and abiotic changes in such systems when disturbed (e.g. introduction of non-native species, climatic change, etc.). 12-9. Explain why and how living systems require a continuous input of energy to maintain their chemical and physical organization. Explain that with death and the cessation of energy input, living systems rapidly disintegrate toward more disorganized states.	11-1. Describe how the maintenance of a relatively stable internal environment is required for the continuation of life, and explain how stability is challenged by changing physical, chemical and environmental conditions as well as the presence of pathogens. 11-5. Investigate the impact on the structure and stability of ecosystems due to changes in their biotic and abiotic components as a result of human activity. 11-11. Investigate issues of environmental quality at local, regional, national and global levels such as population growth, resource use, population distribution, over consumption, the capacity of technology to solve problems, poverty, the role of economics, politics and different ways humans view the earth.	11-2. Recognize that chemical bonds of food molecules contain energy. Energy is released when the bonds of food molecules are broken and new compounds with lower energy bonds are formed. Some of this energy is released as thermal energy. 12-1. Recognize that information stored in DNA provides the instructions for assembling protein molecules used by the cells that determine the characteristics of the organism. 12- 3. Explain that the sun is essentially the primary source of energy for life. Plants capture energy by absorbing light and using it to form strong (covalent) chemical bonds between the atoms of carbon-containing (organic) molecules. 12-6. Explain how Developmental differentiation is regulated through the expression of different genes. **11/16/2005**