Print Date: 4/10/15

Course Objectives/Course Outline
Spokane Community College

Course Title: **Majors Ecology/Evolution: w/Lab**
Prefix and Course Number: **BIOL& 221**

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Describe the mechanisms of evolution
- Describe the process and significance of the classifications of organisms
- Use mathematical models to predict biological outcomes
- Describe the unifying traits of major taxa
- Describe adaptations and distinguishing traits of major taxa
- Explain the fundamental principles of population structure, distribution and growth
- Characterize the various forms of species interactions in biological communities
- Explain how matter and energy are ecologically stored, transferred and transformed

Course Outline:

I. History
   A. Darwin's contributions
   B. evolutionary theory
II. Evolution of populations
   A. natural selection and adaptation
   B. population genetics
III. Species Concepts
   A. speciation
   B. macroevolution
IV. Systematics
   A. taxonomy
   B. phylogenetics
   C. morphological and molecular homologies
V. Evolution of Life and Prokaryotes
   A. archaea
   B. bacteria
VI. Protista
   A. diversity of protists and unifying characteristics
   B. reproduction
   C. adaptations
VII. Plantae
   A. diversity of plants and unifying characteristics
   B. plant reproduction and life cycles
   C. adaptations
VIII. Fungi
   A. diversity of fungi and unifying characteristics
   B. fungi reproduction and life cycles
   C. adaptations
IX. Animalia
   A. diversity of animals and unifying characteristics
   B. animal reproduction and life cycles
   C. adaptations

X. Population ecology
   A. density and dispersion
   B. demography
   C. models of population growth
XI. Community Ecology
   A. interactions within the community
   B. dominant and keystone species
   C. disturbance and species diversity
XII. Ecosystem ecology
   A. energy flow
   B. chemical cycling
   C. human impact and conservation