2013-14 BS Biological Sciences
Ecology & Evolutionary Concentration

120 Credit minimum *designates only grades of “C” or better (not ‘C-’) may be used to fulfill these requirements

**GENERAL REQUIREMENTS**

**COMMUNICATIONS:** (9)
ENGL 111X Intro to Academic Writing (3)
ENGL 211X Academic Writing -Literature
OR ENGL 213X Academic Writing - Social & Nat. Sci.(3)
COMM 131X Group Communications OR 141X Public Speaking (3)

**PERSPECTIVES ON THE HUMAN CONDITION:**-(18-22)
Complete 6 courses listed OR 4 of those listed plus 2 semester length courses in a single AK Native or other non-English language or 3 semester length courses (9 credits) in American Sign Language. All Perspectives Core require English 111 placement; 200 level courses- sophomore standing or higher; 300 level - junior standing or higher

ANTH 100X/SOC 100X Individual, Society & Culture (3)
ECON/PS 100X World Political Economy (3)
HIST 100X World History (3)
ART/MUS/THR 200X or HUM 201X or ANS 202X Art Appreciation (3)
ENGL/LI 200X World Literature (3)
BA 323X or COMM 300X or JUST 300X or NRM 303X or PHIL 322X or PS 300X (these are all 300 level Ethics courses) (3)
Language option as listed above- but may not be counted under minor requirements:

**MATH & STATISTICS:** (6-7)
Requires recent Math Placement and/or prerequisites
*STAT 200X Elementary Probability & Statistics (3)
OR *STATS 300 Statistics (3)
*MATH 272X Calculus for Life Sciences (3)
OR *MATH 200X Calculus (4)

**NATURAL SCIENCE:** (16)
CHEM 105 General Chemistry I (4)
and CHEM 106 General Chemistry II (4)
PHYS 103 College Physics I, Fall, DEV 105 & ENGL 111 placement (4)
and *PHYS 104 College Physics II - Spring (4)

**LIBRARY & INFO SKILLS:** (0-1)
LS competency test OR LS 100X or 101X (1)

**WRITING AND ORAL INTENSIVE COURSES:**
Required: 2 DESIGNATED (W); AND
1 DESIGNATED (O) COURSE OR 2 DESIGNATED (O/2):
(W) OR (O) OR (O/2)

**UPPER DIVISION CREDITS** (300 & 400-level): (39)
Transfer Credits ___ minimum of 24 UAF Credits

**MAJOR REQUIREMENTS** (All BIOL courses except BIOL 213/214 listed below have BIOL 115/116 prereqs as well as at least MATH 107/ENGL 111 placement prereqs)

1. Complete the following (30-35):
*BIOL 115 Fundamentals of Biology I – Fall/Summer, MATH 107 & ENGL 111 placement, Chem 105 or concurrent enrollment (4)
*BIOL 116 Fundamentals of Bio II – Spring/Summer, BIOL 115X (4)
*BIOL 260/362 Principles of Genetics, CHEM 105, MATH 107 (4)
*BIOL 360/261 Cell & Molecular, BIOL 260/362, CHEM 105 & 106 (3)
*BIOL 481 Principles of Evolution, BIOL 260/362, STAT 200 prereq (or concurrent enrollment in STAT 200), junior standing or higher, stacked w/ BIOL 681, (4)

*BIOL 310 Animal Physiology, Fall, CHEM 105/106 prereq (4)
OR *BIOL 334 Structure and Function in Vascular Plants, odd Spring, MATH 107, ENGL 111 & 211/213 prereqs ^ (W) (4)
OR *BIOL 342 Microbiology, Spring, Chem 105 prereq (4)
OR * BIOL 213/111 Human Anatomy & Physiology I, Fall, Placement in DEV 105 and ENGL 111X or higher prereqs ^; CHEM 103X or CHEM 105X (4) and *BIOL 214/112 Human Anatomy & Physiology II, Spring, BIOL 213X/111X, CHEM 103X or 105X prereq (4)

*CHEM 321 Organic Chem I, Fall, Chem 106 prereq ^ (4)
and *CHEM 322 Organic Chem II, Spring, Chem 321 prereq ^ (3)
or *Chem 451 General Biochemistry – Metabolism, Spring, Chem 321 prereq ^ (3)

2. Complete the following electives – at least one course must satisfy W requirement: - (22-28) Lists on reverse:

*BIOL 371/271 Principles of Ecology, LS 100/101 (4)
*Ecology & evolutionary biology electives – two courses from list C (6-8)
*Organismal – one course from List D (3-4)
*Biology breadth elective – one additional course from Lists A or B (3-4)
*Bioelective – one additional course from Lists A, B, C or D (3-4)
*STAT 401 Regression & Analysis of Variance, STAT 200 or 300 prereq, ^ (4)
OR *STAT 402 Scientific Sampling, STAT 200 or 300 prereq, ^ (3)

3. Complete a biology capstone project (0-4) Can be met through petition following the completion of a mentored research project w/a faculty member (e.g. by taking BIOL 497 or BIOL 490 or without course credits), or automatically by completing at least one of the following courses:

*BIOL 434/334 Structure and Function in Vascular Plants, odd Spring, MATH 107, ENGL 111 & 211/213 prereqs ^ (W) (4)
*BIOL 472 Community Ecology, Fall even years, BIOL 271/371, ENGL 111 & 211/213 prereqs ^ (W) (3)
*BIOL 432 Animal Behavior, Fall, BIOL 271/371, BIOL 310, COMM 131/141, ENGL 111 & 211/213 prereqs, BIO 481 co-req ^ (W, O/2) (4)
*BIOL 473 Limnology, Fall, BIOL 271/371, Chem 105 & 106, ENGL 111 & 211/213 prereqs ^ (W) (3)
*BIOL 503 Metabolism & Biochemistry, Fall, Chem 105&106, BIO 261/360, COMM 131/141, ENGL 111 & 211/213 prereqs ^ (W) (4)

^ or permission of instructor

**ELECTIVES** (for a program total of 120 credits):

(W) OR (O/2)

(W) OR (O)

(W) OR (O/2)

**a minor is optional with a BS degree – see current catalog for more details and requirements. If a minor is selected, there will be fewer free electives required.**
### 2013-14 BA & BS Biological Sciences Degree Programs

#### List A-D Supplement – all require grade of ‘C’ or higher*

*See current catalog for prereqs and when offered*

#### List A – Cell and Molecular Biology
- BIOL 342 Microbiology (3)
- BIOL 360/261 Cell and Molecular Biology (3)
- BIOL 403 Metabolism and Biochemistry (W) (4)
- BIOL 417 Neurobiology (O) (3)
- BIOL 462 Concepts of Infectious Disease (O)(3)
- BIOL 465 Immunology (3)
- BIOL 4xx Principles of Virology (3)
- CHEM 322 Organic Chemistry II (3)
- CHEM 450 General Biochemistry – Macromolecules (3)
- CHEM 451 General Biochemistry – Metabolism (3)
- CHEM 470 Cellular and Molecular Neuroscience (3)
- CHEM 474 Neurochemistry (3)

#### List B – Physiology
- BIOL 310 Animal Physiology, Fall, CHEM 105/106 prereq (4)
- BIOL 335 Epidemiology (3)
- BIOL 342 Microbiology (4)
- BIOL 417 Neurobiology (O) (3)
- BIOL 422 Physiology and Ecology of Overwintering (3)
- BIOL 434/334 Structure & Function in Vascular Plants, (W)(4)
- BIOL 441 Animal Behavior, (W, O/2) (3)
- BIOL 445 Environmental Toxicology (W, O) (3)
- BIOL 457 Environmental Microbiology (W) (3)
- BIOL 458 Vertebrate Endocrinology (3)
- BIOL 459 Wildlife Nutrition (O/2) (4)
- BIOL 462 Concepts of Infectious Disease (O) (3)
- BIOL 465 Immunology (3)
- BIOL 4xx Principles of Virology (3)

#### List C – Ecology and Evolutionary Biology
- BIOL 371/271 Principles of Ecology (4)
- BIOL 418 Biogeography (3)
- BIOL 422 Physiology and Ecology of Overwintering (3)
- BIOL 433 Conservation Genetics (3)
- BIOL 441 Animal Behavior, (W, O/2) (3)
- BIOL 457 Environmental Microbiology (W) (3)
- BIOL 462 Concepts of Infectious Disease (O) (3)
- BIOL 469 Landscape Ecology and Wildlife Habitat (O) (3)
- BIOL 471 Population Ecology (3)
- BIOL 472 Community Ecology (W) (3)
- BIOL 473 Limnology (W) (3)
- BIOL 474 Plant Ecology (4)
- BIOL 475 Vegetation Description and Analysis (3)
- BIOL 476 Ecosystem Ecology (O) (3)
- BIOL 483 Stream Ecology (3)
- BIOL 485 Global Change Ecology (3)
- BIOL 486 Vertebrate Paleontology (3)
- BIOL 487 Conceptual issues in Evolutionary Biology (3)
- BIOL 488 Arctic Vegetation Ecology: Geobotany (3)
- WLF 301 Design of Wildlife Studies (3)
- WLF 410 Wildlife Populations and Their Management (3)

#### List D – Organismal
- BIOL 301 Biology of Fishes (4)
- BIOL 305 Invertebrate Zoology (4)
- BIOL 317 Comparative Anatomy (4)
- BIOL 331 Systematic Botany (4)
- BIOL 406 Entomology (4)
- BIOL 418 Biogeography (4)
- BIOL 425 Mammalogy (W) (3)
- BIOL 426 Ornithology (W, O/2) (3)
- BIOL 427 Ichthyology (4)
- BIOL 486 Vertebrate Paleontology (3)
- BIOL 489 Vegetation Description and Analysis (3)

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Once the student decides on a concentration, the student should send an email to registrar@uaf.edu with the student’s name, ID number, and choice of concentration. This will assist with correct tracking in DegreeWorks.