2014-15 BS Biological Sciences
Cell and Molecular 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/FL 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:_____________( )___ _____________( )___

*MATHEMATICS & 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 M 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) __________________(W)
________________(O) OR_______(O/2)_______(O/2)

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

*MAJOR REQUIREMENTS
All Biology courses higher than BIOL 116X listed below have BIOL 115X/116X as well as at least MATH 107X/ENGL 111X placement prereqs (except BIOL 213X & 214X) (additional prereqs in parenthesis)

*1. Complete the following:
*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 Principles of Genetics- fall/spring (CHEM 105, Math 107) (4)____
*BIOL 481 Principles of Evolution – fall/spring (BIOL 260; STAT 200 or
concurrent enrollment, junior standing or higher) (4)____

*BIOL 310 Animal Physiology- Fall (CHEM 105/106) (4)____

OR *BIOL 334 Structure and Function in Vascular Plants- fall Spring
(MATH 107, ENGL 111 & 211/213) ^ (W) (4)____
OR *BIOL 342 Microbiology- Spring (CHEM 105) (4)____
OR * BIOL 213 Human Anatomy & Physiology I- Fall
(Placement in DEV M 105 and ENGL 111X or higher^);
Completion of CHEM 103X or CHEM 105X (4)____ and
*BIOL 214 Human Anatomy & Physiology II- Spring (BIOL
213X, CHEM 103X or 105X) (4)____

*CHEM 321 Organic Chem I - Fall, (CHEM 106) (4)____
*CHEM 322 Organic Chem II – Spring (CHEM 321) (3)____

*2. Complete the following concentration requirements (at least one must
meet W requirement) Lists on reverse:
*BIOL 360 Cell & Molecular – typically spring (BIOL 260, CHEM 105 &
Chem 106) (3)____

*CHEM 450 General Biochem Macromolecules- Fall (CHEM 322) (3)____
*CHEM 451 General Biochem Metabolism - Spring (CHEM 321) (3)____
*Cell & molecular or physiology electives - take three additional courses
from Lists A or B, at least one of which must be from list A.
*Biology breadth elective – take one addition from Lists C or D

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 Structure and Function in Vascular Plants- odd Spring
(MATH 107, ENGL 111 & 211/213) (W) (4)____
*BIOL 472 Community Ecology- even Fall (BIOL 371, ENGL 111 &
211/213) (W) (3)____
*BIOL 441 Animal Behavior- Fall (BIOL 371, BIOL 310, COMM 131/141,
ENGL 111 & 211/213; BIOL 481 co-req) (W, O/2) (4)____
*BIOL 473 Limnology- odd Fall (BIOL 371, CHEM 105 & 106,
ENGL 111 & 211/213) (W) (3)____
*BIOL 403 Metabolism & Biochemistry- Fall (CHEM 105&106,
BIOL 360, COMM 131/141, ENGL 111 & 211/213) (W) (4)____

^ or permission of instructor

ELECTIVES** (for a program total of 120 credits):
________________ (W) _____________ (W)
________________ (O) __________________(O/2)
________________ (W) __________________(W)
________________ (O) __________________(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.
2014-15 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

<table>
<thead>
<tr>
<th>*List A – Cell and Molecular Biology</th>
<th>*List B – Physiology</th>
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<tbody>
<tr>
<td>BIOL 342 Microbiology (3)</td>
<td>BIOL 310 Animal Physiology (4)</td>
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<tr>
<td>BIOL 360 Cell and Molecular Biology (3)</td>
<td>BIOL 317 Comparative Anatomy (4)</td>
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<tr>
<td>BIOL 403 Metabolism and Biochemistry (W) (4)</td>
<td>BIOL 335 Epidemiology (3)</td>
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<td>BIOL 417 Neurobiology (O) (3)</td>
<td>BIOL 342 Microbiology (4)</td>
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<tr>
<td>BIOL 462 Concepts of Infectious Disease (O)(3)</td>
<td>BIOL 417 Neurobiology (O) (3)</td>
</tr>
<tr>
<td>BIOL 465 Immunology (3)</td>
<td>BIOL 422 Physiology and Ecology of Overwintering (3)</td>
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<tr>
<td>CHEM 322 Organic Chemistry II (3)</td>
<td>BIOL 441 Animal Behavior, (W, O/2) (3)</td>
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<tr>
<td>CHEM 450 General Biochemistry– Macromolecules (3)</td>
<td>BIOL 445 Environmental Toxicology (W, O) (3)</td>
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<tr>
<td>CHEM 451 General Biochemistry – Metabolism (3)</td>
<td>BIOL 457 Environmental Microbiology (W) (3)</td>
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<td>CHEM 470 Cellular and Molecular Neuroscience (3)</td>
<td>BIOL 458 Vertebrate Endocrinology (3)</td>
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<td>CHEM 474 Neurochemistry (3)</td>
<td>BIOL 459 Wildlife Nutrition (O/2) (4)</td>
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<td>BIOL 462 Concepts of Infectious Disease (O) (3)</td>
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<td>BIOL 465 Immunology (3)</td>
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<td>BIOL 494 Principles of Virology (3)</td>
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<tr>
<th>*List C – Ecology and Evolutionary Biology</th>
<th>*List D - Organismal</th>
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<tbody>
<tr>
<td>BIOL 371 Principles of Ecology (4)</td>
<td>BIOL 301 Biology of Fishes (4)</td>
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<tr>
<td>BIOL 418 Biogeography (3)</td>
<td>BIOL 305 Invertebrate Zoology (4)</td>
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<td>BIOL 422 Physiology and Ecology of Overwintering (3)</td>
<td>BIOL 317 Comparative Anatomy (4)</td>
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<tr>
<td>BIOL 433 Conservation Genetics (3)</td>
<td>BIOL 331 Systematic Botany (4)</td>
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<td>BIOL 441 Animal Behavior, (W, O/2) (3)</td>
<td>BIOL 406 Entomology (4)</td>
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<td>BIOL 457 Environmental Microbiology (W) (3)</td>
<td>BIOL 418 Biogeography (4)</td>
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<td>BIOL 462 Concepts of Infectious Disease (O) (3)</td>
<td>BIOL 425 Mammalogy (W) (3)</td>
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<td>BIOL 469 Landscape Ecology and Wildlife Habitat (O) (3)</td>
<td>BIOL 426 Ornithology (W,O/2) (3)</td>
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<td>BIOL 471 Population Ecology (3)</td>
<td>BIOL 427 Ichthyology (4)</td>
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<td>BIOL 472 Community Ecology (W) (3)</td>
<td>BIOL 486 Vertebrate Paleontology (3)</td>
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<td>BIOL 473 Limnology (W) (3)</td>
<td>BIOL 489 Vegetation Description and Analysis (3)</td>
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<td>BIOL 474 Plant Ecology (4)</td>
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<td>BIOL 476 Ecosystem Ecology (O) (3)</td>
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<td>BIOL 483 Stream Ecology (3)</td>
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<td>BIOL 485 Global Change Ecology (3)</td>
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<td>BIOL 486 Vertebrate Paleontology (3)</td>
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<td>BIOL 487 Conceptual issues in Evolutionary Biology (3)</td>
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<td>BIOL 488 Arctic Vegetation Ecology: Geobotany (3)</td>
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<tr>
<td>BIOL 489 Vegetation Description and Analysis (3)</td>
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<td>WLF 301 Design of Wildlife Studies (3)</td>
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<td>WLF 410 Wildlife Populations and Their Management (3)</td>
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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.