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| **COURSE CHECKLIST FOR ANIMAL SCIENCE MAJOR, BIOTECHNOLOGY SUBPLAN****(started Fall 2014 major entrants, revised for Fall 2016)** |
| **University Gen Ed Requirements** |
|  | College Writing - Fall or Spring | ENGLWRIT 112 |
|  | Arts/Literature - AL or AT | 4 credit course |
|  | Historical Studies - HS | 4 credit course |
|  | Social/Behavioral Sciences - SB | 4 credit course |
|  | Plus one additional course in – AL, AT, HS, SB, SI or I | ANIMLSCI 260 fulfills SI |
|  | Diversity "U" - can be combined with Gen Eds above, i.e. HSU |  |
|  | Diversity "G" - can be combined with Gen Eds above, i.e. HSG |  |
|  | First Year Seminar, 1 credit |  Can be fulfilled by Animal Science Residential Academic Program-RAP |
|  | Integrative Experience - IE, must be taken in VASCI department at UMassGood IntentionsProblem-Based Learning in Advanced Animal Health (Prereq ANIMLSCI 103, 200, 220, 311, and 472 or 572)Honors Thesis+ Integrating Learning and Research | ANIMLSCI 494GI (spring) or ANIMLSCI 494PI (fall) orANIMLSCI 499Y+499T+ ANIMLSCI 494TI |
| **Basic Science & Math Requirements** |
|  | Intro Biology I | BIOLOGY 151 |
|  | Intro Biology II - prereq. minimum C in BIOLOGY 151 | BIOLOGY 152 |
|  | Biology lab | BIOLOGY 153 |
|  | General Chemistry I + lab - prereq. minimum 20 in part A of math placement exam, or Math 101/102, or Math 104 | CHEM 111 |
|  | General Chemistry II + lab - prereq. minimum C- in CHEM 111 | CHEM 112 |
|  | Organic Chemistry - prereq. CHEM 112 minimum C- | CHEM 261 or 250 |
|  | Biochemistry - prereq. CHEM 250 or 261 or 265, minimum C- | BIOCHEM 420 |
|  | Math R1 either MATH 101/102 or MATH 104 or Test-out |  |
|  | Statistics (Math R2 requirement) | STATISTC 111 or STATISTC 240 or RES-ECON 212 |
|  | Microbiology - prereq. CHEM 261 or CHEM 250 or current enrollment | MICROBIO 310 |
| **Animal Science Core** |
|  | Introduction to Animal Science – Fall note: external or internal transfer students can substitute higher-level elective | ANIMLSCI 101 (lab) |
|  | Introduction to Animal Management – Spring - prereq. ANIMLSCI 101 minimum C | ANIMLSCI 103 (lab) |
|  | Animal Cellular and Molecular Biology – Spring - prereq. BIOLOGY 151 or 190H with a grade of C or better and CHEM 111 or 121H with a grade of C- or better. | ANIMLSCI 200 or BIOLOGY 285 or BIOCHEM 275 |
|  | Anatomy/Physiology – Fall - prereq. BIOLOGY 151 or BIOL 190H, minimum C | ANIMLSCI 220 (lab) |
|  | Animal Care & Welfare – Fall, Gen Ed SI | ANIMLSCI 260 |
|  | Careers in Animal Science - Spring | ANIMLSCI 392A |
|  | Animal Genetics – Fall - prereq. Biology 151 or 190H with a grade of 'C' or better; Biology 152 or 197FH with a grade of 'C' or better; and ANIMLSCI 200 or Biochem 275 or Biology 285 with a grade of 'C-' or better | ANIMLSCI 311 |
|  | Animal Nutrition & Feeding - Spring - prereq. ANSCI 220 | ANIMLSCI 332 |
|  | Junior Year Writing - Fall or Spring | NATSCI 387 |
|  | Infection and Immunity – Fall – OR Molecular Immunology – Spring prereq. ANSCI 200 or BIOLOGY 285 or BIOCHEM 275 | ANIMLSCI 472or ANIMLSCI 572 |
|  | Reproduction – Spring – OR Physiology of Reproduction – Spring pre-req. ANSCI 220 | ANIMLSCI 421 orANIMLSCI 521 |
|  | **Biotechnology Subplan Requirements** | **See reverse** |

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|  | **Biotechnology Subplan Requirements** |  |
|  | Fundamentals in Veterinary and Biotechnology Laboratory Techniques – Fall, 3 credits, prereq. Biology 151 and Chemistry 111 with a grade of C or better | ANIMLSCI 365 (lab) |
|  | Veterinary Microbiology Lab – Fall or Spring, 2 credits, prereq. Biology 152 & 153 with a grade of C or better, MICROBIO 310 or concurrent enrollment. | ANIMLSCI 366 (lab) |
|  | Research Animal Management I – Fall, 4 credits | ANIMLSCI 455 (lab) |
|  | Research Animal Management II – Spring, 3 credits prereq. ANIMLSCI 455 | ANIMLSCI 456 (lab) |
|  | **Complete 6 credits in Laboratory Research from the following:**Introductory Biotechnology Lab Spring, (4 credits)sprereq. ANIMLSCI 200 or BIOLOGY 285 or BIOCHEM 275 and ANIMLSCI 311 Canine Tumor Project (2 credits), prereq ANIMLSCI 103 and  BIOLOGY 151Biotech Research – Cellular and Molecular I (1 credit) Biotech Research – Cellular and Molecular II (2 credits) Biotech Research – Cellular and Molecular III (3 credits) Biotech Research – AnimaI Models I (1 credit)Biotech Research – AnimaI Models II (2 credits) Biotech Research – AnimaI Models III (3 credits) |    ANIMLSCI 385 (lab) ANIMLSCI 390T ANIMLSCI 291C ANIMLSCI 391C ANIMLSCI 491C ANIMLSCI 291M ANIMLSCI 391M ANIMLSCI 491M |

3/6/19