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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 UMass  Good Intentions  Problem-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) or  ANIMLSCI 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 472  or ANIMLSCI 572 |
|  | Reproduction – Spring – OR Physiology of Reproduction – Spring pre-req. ANSCI 220 | ANIMLSCI 421 or  ANIMLSCI 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)s  prereq. ANIMLSCI 200 or BIOLOGY 285 or BIOCHEM 275 and ANIMLSCI 311  Canine Tumor Project (2 credits), prereq ANIMLSCI 103 and  BIOLOGY 151  Biotech 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