INTERDISCIPLINARY STUDIES (AFSNR or SCMTH)
MAJOR: BIOTECHNOLOGY
ACADEMIC YEAR: 2013-2014
DEGREE TYPE: B.A. or B.S.
REQUIRED DEGREE CREDITS TO GRADUATE: 128

GENERAL EDUCATION REQUIREMENTS – 40 CREDITS

Lower Division Requirements – 37 Credits
First Year Experience (F) - 1 Credit
AGRI/UNIV 189 Skills for Academic Success  1 cr
Students transferring in 24 or more credits do not need to take AGRI/UNIV 189.

Communication (C) - 9 Credits
ENGL 110 College Composition I  3 cr
ENGL 120 College Composition II  3 cr
COMM 110 Fund of Public Speaking  3 cr

Quantitative Reasoning (R) - 3 Credits
STAT 330 Introductory Statistics  3 cr

Science & Technology (S) - 10 Credits
CHEM 121/L General Chemistry I/Lab  3/1 cr
CHEM 122/L General Chemistry II/Lab  3/1 cr
PHYS 211/L or College Physics I/Lab  3/1 cr
251/L University Physics I/Lab

Humanities & Fine Arts (A) - 6 Credits
Select from current general education courses www.ndsu.edu/registrar/gened/

Social & Behavioral Sciences (B) - 6 Credits
Select from current general education courses www.ndsu.edu/registrar/gened/

Wellness (W) - 2 Credits
Select from current general education courses www.ndsu.edu/registrar/gened/

Cultural Diversity (D)
Select from current general education courses www.ndsu.edu/registrar/gened/

Global Perspectives (G)
Select from current general education courses www.ndsu.edu/registrar/gened/

Upper Division Requirements - Writing – 3 Credits
ENGL 320, 321, 324, 325, 459, or MICR 354  3 cr

BIOTECHNOLOGY REQUIREMENTS – 31-32 CREDITS
BIOC 460/L Found of Biochemistry & Molecular Biology I  3/1 cr
BIOC 461 Found of Biochemistry & Molecular Biology II  3 cr
BIOC 465 Principles of Physical Chemistry  4 cr
BIOC 474 Methods of Recombinant DNA Tech  3 cr
MICR 350/L General Microbiology I/Lab  3/2 cr
MICR 470 Basic Immunology  3 cr
MICR 471 Immunology & Serology Lab  2 cr
MICR 482 Bacterial Genetics & Phage  3 cr

BIOTECHNOLOGY REQUIREMENTS – CONTINUED
MICR 491 Biotech Seminar  1 cr
MICR 494 Senior Research  2-4 cr
MICR 494 Senior Thesis  1 cr

SUPPORTING REQUIREMENTS – 35 CREDITS
AGRI* 150 Agriculture Orientation  1 cr

APPLIES TO STUDENTS EARNING THE DEGREE FROM THE COLLEGE OF AFSNR ONLY.

BIOC 460/L General Biology I/Lab  3/1 cr
BIOC 461 General Biology II/Lab  3/1 cr
CHEM 341/L Organic Chemistry I/Lab  3/1 cr
CHEM 342 Organic Chemistry II  3 cr
CSCI 114 or Microcomputer Packages or  3 cr
122 Beginning BASIC

MATH 146 & 147 or Applied Calculus I & II  8 cr
165 & 166 Calculus I & II

PHYS 212/L or College Physics II/Lab  3/1 cr
252/L University Physics II/Lab

PLSC 315/L Genetics/Lab  3/1 cr

MAJOR ELECTIVE IN PHYSIOLOGY - 3 CREDITS
BOT 380 or Plant Physiology  3 cr
ZOO 460 or Animal Physiology
MICR 480 Bacterial Physiology

MAJOR ELECTIVE IN BIOTECHNOLOGY TECHNIQUE – 4-6 CREDITS
BIOC 473 Methods of Biochemical Research  3 cr
BIOC 487 Molecular Biology of Gene Expression  3 cr
BIOL 440 Biotechnology & Ethics  2 cr
MICR 445 Animal Cell Culture Tech (LAB)  2 cr
PLSC 411 Genomics  3 cr
PLSC 484 Plant Tissue Cult & Micropropagation  2 cr
PPTH 453 Microscopy  3 cr

HUMANITIES & FINE ARTS OR SOCIAL & BEHAVIORAL SCIENCES CREDITS – 6 CREDITS
An additional 6 credits of Humanities & Fine Arts or Social & Behavioral Sciences are required for earning a B.S. degree from either the College of Agriculture, Food Systems, and Natural Resources or the College of Science and Mathematics.

DEGREE REQUIREMENTS – 6-9 CREDITS TO REACH 128

Degree Requirements and Notes:
• A 2.50 cumulative GPA is required for graduation and to remain in program.

Bachelor of Arts (BA) Degree – Required if receiving the degree from the College of Science and Mathematics: an additional 12 credits Humanities and Social Sciences and proficiency at the second year level in a modern foreign language. Humanities and Social Sciences may be fulfilled by any course having the following prefix: ADHM, ANTH, ARCH, ART, CJ, CLAS, COMM, ECON, ENGL, FREN, GEOG, GERM, HDFS, HIST, LA, LANG, MUSC, PHIL, POLS, PSYC, RELS, SOC, SPAN, THEA, WGS, or any course from the approved list of general education courses in humanities and social sciences (general education categories A and B). These credits must come from outside the department of the student’s major.