

**MAJOR - AGRICULTURAL SCIENCES
CONCENTRATION—BIOTECHNOLOGY
ACADEMIC MAP: DEGREE BS (120 CREDIT HOURS)**

This degree map is a semester-by-semester course schedule for students majoring in [Agricultural Sciences with a concentration in Biotechnology](#). The milestones listed to the right of each semester are designed to keep a student on track to graduate in four years. The schedule serves as a general guideline to help build a full schedule each semester. Milestones are courses and special requirements necessary for timely progress to complete a major. When one or more milestones are missed, students should consult with an academic advisor to determine if another degree path would be more suitable.

The concentration in Agricultural biotechnology provides training in modern technologies such as genetic engineering, drug discovery, product development, use DNA and RNA technologies to develop disease resistant and improve production in plants and animals, developing crops that are drought resistant, and ensuring food security and food safety. Students majoring in Agricultural biotechnology must gain upper division status before enrolling in upper division courses (3000 & 4000 levels). Students may be admitted to the upper division after completing at least 60 degree level lower division credits (as set out in the curriculum) with a minimum cumulative grade point average (GPA) of 2.0. It is the responsibility of the student to submit a formal petition to the department. Such petition will be reviewed by a departmental committee to ensure that all criteria have been met. Minimum grade of C is required for upper division courses. Students who incur a probationary status are to repeat failed courses, or courses in which 'D's were earned, during the semester immediately following that in which the grades were earned. The College has a special program to assist students who are on probation. Please contact the Academic Coordinator for details.

Tennessee State University recognizes that students have diverse learning, life, and professional experiences. The University provides opportunities for students to earn college credit toward the degree through a number of assessment options that evaluate their learning experiences. These paths are grouped under the category "Prior Learning Assessment" (PLA). Various means of earning PLA credit at TSU are the following: Advance Placement Program, American Council of Education (ACE) Military Credit, American Council on Education (ACE) other Assessed Credit, College Level Exam Program (CLEP), DSST Credit by Examination Program (includes DANTES Examination), Institutional Course Challenge Exams (Departmental Exams), International Baccalaureate Credit, Other Military Service, Portfolio Assessment. To learn more about PLA contact your academic advisor or the Office of Student Support Services for Adult and Distance Learners (615) 963-7001.

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Fall Schedule		Milestones
Semester 1	Hrs.	Semester 1
ENGL 1010	3	Pre-Requisite Course: Must be taken before ENGL 1020, and HIST 2010, HIST 2020, HIST 2030, HIST 2050 or HIST 2700; Minimum grade "C" Required
BIOL 1110/1111	4	Minimum Grade of "C" required
MATH 1110	3	Minimum Grade of "C" required
UNIV 1000*	1	
AGSC 1410	3	Pre-Requisite Course: Required for all Animal Science Courses; Minimum Grade of "C" Required
COMM 2200	3	
Total Hours	17	

*Orientation course taken at another University does **NOT** meet this requirement. Students with less than 60 credit hours must take UNIV 1000 at TSU.

Spring Schedule		Milestones
Semester 2	Hrs.	Semester 2
ENGL 1020	3	Pre-Requisite Course: Must be taken before taking HIST 2010, HIST 2020, HIST 2030, HIST 2050 or HIST 2700; Minimum grade "C" Required
CHEM 1110/1111	4	Minimum Grade of "C" required
Social Behavioral Science*	3	
Humanities**	3	
AGSC 1200	3	Pre-Requisite Course: Required for all Plant Science Courses; Minimum Grade of "C" Required
Total Hours	16	

*The following courses can meet the Social Science elective AFAS 2010, ANTH 2300, ECON, 2010, GEOG 1010, HPSS 1510, POLI 1010 PSYC 2010, WMST 2000, and URBS 2010.

**Students must take a 3 credit hour course from the following list of approved general education Humanities courses: AREN 2310, ART, 1010, HIST 1000, THTR 1020, MUSC 1010, PHIL 1030, or RELS 2010.

Fall Schedule		Milestones
Semester 3	Hrs.	Semester 3
Humanities*	3	
AGSC Guided Elective**	3	Minimum Grade of "C" required
HIST 2010***	3	
AGSC 2040 Or MATH 1710, MATH1720, MATH1730 MATH 1830 or MATH1910****	3	Minimum Grade of "C" required
CHEM 1120/1121	4	Minimum Grade of "C" required
Total Hours	16	Petition for Admission to the Upper Division

*Students must take a 3 credit hour course from the following list of approved general education Humanities courses: AREN 2310, ART, 1010, HIST 1000, THTR 1020, MUSC 1010, PHIL 1030, or RELS 2010.

**Agricultural Sciences electives include: AGSC 2010, AGSC 2020, AGSC 2200, and AGSC 2400.

***The Department recommends HIST 2010; however, HIST 2030, HIST 2050, HIST 2060 or HIST 2700 satisfy this requirement.

****Discuss with an academic advisor course options. The choice should be based on the admission requirements to desired professional schools.

Spring Schedule		Milestones
Semester 4	Hrs.	Semester 4
ENGL LIT*	3	
Social Behavioral Science**	3	
HIST 2020 ***	3	
Humanities****	3	
BIOL 2110/2111	4	Minimum Grade of "C" required
Total Hours	16	

*The department recommends the courses cited above; however, courses within the range of ENGL 2012 through ENGL 2322 will meet this requirement

**The following courses can meet the Social Science elective AFAS 2010, ANTH 2300, ECON, 2010, GEOG 1010, HPSS 1510, POLI 1010 PSYC 2010, WMST 2000, and URBS 2010

***The Department recommends HIST 2010; however, HIST 2030, HIST 2050, HIST 2060 or HIST 2700 satisfy this requirement.

****Students must take a 3 credit hour course from the following list of approved general education Humanities courses: AREN 2310, ART, 1010, HIST 1000, THTR 1020, MUSC 1010, PHIL 1030, or RELS 2010.

Fall Schedule		Milestones
Semester 5	Hrs.	Semester 5 Student should meet with an academic advisor to discuss the research assignment required for AGSC 4500-Senior Project
AGSC 3710	3	Minimum Grade of "C" required
AGSC 3270	3	Minimum Grade of "C" required
PHYS 2010/2011 Or BIOL 2120/2121*	4	Minimum Grade of "C" required
AGSC 2600	4	Minimum Grade of "C" required
Total Hours	14	

*Discuss with an academic advisor course options. The choice should be based on the admission requirements to desired professional schools.

Spring Schedule		Milestones
Semester 6	Hrs.	Semester 6
AGSC 3540 Or MATH 1710, MATH1720, MATH 1730, MATH 1830 or MATH1910*	3	Minimum Grade of "C" Required
CHEM 3410/3411	3	Minimum Grade of "C" Required
PHYS 2020/2021 Or BIOL 3410 Or BIOL 3400**	4	Minimum Grade of "C" Required
AGSC 4710	1	Minimum Grade of "C" Required
Total Hours	12	

*Discuss with an academic advisor course options. The choice should be based on the admission requirements to desired professional schools.

Fall Schedule		Milestones
Semester 7	Hrs.	Semester 7
AGSC 4720	1	
BIOL 2120/2121 Or BIOL 4110/4111*	4	Minimum Grade of "C" required
AGSC 4280	3	Minimum Grade of "C" required
AGSC 4270	3	Minimum Grade of "C" required
CHEM 2010/2011	4	Minimum Grade of "C" required
Total Hours	15	

* Discuss with an academic advisor course options. The choice should be based on the admission requirements to desired professional schools.

Spring Schedule		Milestones
Semester 8	Hrs.	Semester 8
		Take Senior Exit Exam and Apply for Graduation
CHEM 2020/2021 Or CHEM 4700/4701 Or CHEM 2100 /2101 *	4	Minimum Grade of "C" required
BIOL 4112	3	Minimum Grade of "C" required
AGSC 3110	4	Minimum Grade of "C" required
AGSC 4500	3	Presentation of Senior Project Research; Minimum Grade of "C" required
Total Hours	14	

*Discuss with an academic advisor course options. The choice should be based on the admission requirements to desired professional schools.

Employment Information:

Modern biotechnology provides breakthrough products and technologies to combat debilitating and rare diseases, reduce our environmental footprint, feed the hungry, and use less and cleaner energy, and have safer, cleaner and more efficient industrial manufacturing processes for improving human life. Thus wide variety of employers in academia, public service institutes as well as research and development industries require graduates with skills in biotechnology disciplines.

Representative Job Titles Related to this Major:

Health related industries technologists in industries such as Bio-Pharmaceuticals, Therapeutic Proteins, Drug Delivery, Biocatalysts and Gene Therapy. Also research or analytical positions at various levels in, Manufacturers with Bio-Products, Food Industry, Bioinformatics facilities, Bioremediation and Bioleaching units, Bio-Economics and Bio-Refinery, Molecular Synthetic Biology institutes, Genomics and Proteomics facilities, as well as Academic Research Laboratories can be filled by biotechnology graduates.

Representative Employers:

All employers in public or private setting who apply scientific and engineering principles to living organisms to produce products and services of value to society. This includes Educational institutes, Major Corporations, Small Businesses, Governments, Local, State, Federal, Non-Profit Organizations

International study is available for all TSU students and may include opportunities for internships or taking course work towards various minors. International study may have an impact on the MAP; therefore, it is important to consult with the academic advisor for this major before participating in an international Program opportunity. Students interested in study abroad opportunities should contact the Office of International Programs and consult with their academic advisor.

This map is not intended to be a contract; either expressed or implied, between the University and the students, but represents a flexible program of the current curriculum which may be altered from time to time to carry out the academic objectives of the University. TSU specifically reserves the right to change, delete or add to any MAP at any time within the student's period of study at the University.
