BIOTECHNOLOGY: AAS

Associate in Applied Science | 60 credit hours minimum

Area of Interest: Science, Technology, Engineering, and Math (STEM)

Program Website (https://stlcc.edu/programs-academics/pathways/s-t-e-m/biotechnology/)

Academic Advising (https://stlcc.edu/admissions/advising/)

Program Description:

The Associate in Applied Science in Biotechnology offers students specialized training for employment as biotechnicians engaged in research and development, quality control, biomanufacturing, and bioprocessing. All students in this field of study are required to complete the core biotechnology/science courses. Specialization is offered by allowing individualized selection of advanced topics in biotechnology. The completion of this program provides the knowledge and hands on skills necessary to work in a life science research laboratory/workplace.

Locations. This program is offered in its entirety at Florissant Valley.

Related Programs. The Biotechnology Department offers certificates in the following areas:

Biotechnology, Certificate of Proficiency (http://catalog.stlcc.edu/programs/biotechnology-certificate-proficiency/)

Life Science Laboratory Assistant, Certificate of Specialization (http://catalog.stlcc.edu/programs/life-science-laboratory-assistant-certificate-specialization/)

Cost of Attendance. For more information on cost of attendance visit **MoSCORES (https://scorecard.mo.gov/Search/)**.

Program Career and Salary Information. Pursuant to Missouri HB 1606 (2018), information regarding the number of credit hours, program length, employment rate, wage data, and graduates employed in careers related to their program of study at St. Louis Community College can be found at the following URL: **https://scorecard.mo.gov/scorecard/(https://www.google.com/url/?q=https://scorecard.mo.gov/scorecard/&sa=D&ust=1555536894857000&usg=AFQjCNG1xf3E_i2lO96zEytILO-s5xaJCQ)**. Search using School / Program "St. Louis Community College" and choose the degree or credential type of interest.

The following limitations to the data apply: Information provided is based on the most recent cohorts available. Typically, most recent cohorts for wage and completion data are six years prior to the current academic year. Time to complete a program of study varies depending on the number of credit hours students earn per semester.

Interested in this program? Start the enrollment process by visiting the **Apply to STLCC (https://www.stlcc.edu/admissions/apply-to-stlcc/)** page.

At the completion of the program, students are expected to:

1. describe experimental procedures and conclusions.
2. perform Good Documentation Practices from which data analysis, project decisions, and successive experimental designs are achieved.
3. apply recombinant DNA technology techniques focusing from DNA to protein, and inheritance of genetic information.
4. adhere to laboratory standards including use of Personal Protective Equipment, documentation and organization and cleanliness in the workspace.
5. collaborate within a team environment.
6. design experiments using basic molecular biology methodologies with proper controls and anticipated results defined.
7. perform experiments using basic molecular biology methodologies such as separation of macromolecules through electrophoretic techniques, polymerase chain reaction, cell culture, recombinant DNA techniques, and protein expression/purification.
8. assess the contributions of biotechnology to advances in the fields of agriculture and human health.
9. analyze scientific information derived from peer-reviewed journals.
10. explain significant contributions in the fields of biotechnology.

Missouri Civics Examination. Students entering college for the very first time in fall 2019 and who intend to complete an associate's degree must successfully complete a civics examination. **Information on who is eligible for a waiver can be found on the STLCC website (https://stlcc.edu/programs-academics/missouri-civics-exam.aspx)**.

Program of Study

Code	Title	Credit Hours
General Education		
ENG 101	College Composition I (MOTR ENGL 100)	3
or ENG 102	College Composition II (MOTR ENGL 200)	
COM 101	Oral Communication I (MOTR COMM 100)	3
or COM 107	Public Speaking (MOTR COMM 110)	
or COM 201	Interpersonal Communication (MOTR COMM 120)	
MTH 160	Precalculus Algebra (MOTR MATH 130) (or MTH 160S)	3
XXX xxx	Social & Behavioral Sciences: Civics Requirement (http://catalog.stlcc.edu/general-education/)	3
CHM 105	General Chemistry I (MOTR CHEM 150L)	5
BIO 140	Principles of Biology I (MOTR BIOL 150L)	5
Program Requirements		
BTX 104	Basic Laboratory Methods for Biotechnology	3
BTX 152	Quantitative Methods in Biotechnology	2
BTX 228	Research and Presentation Skills for the Life Sciences	2
BIO 225	Genetics	3
BIO 235	Genetics Laboratory	2
BTX 218	Microbiology for Biotechnology	4
BTX 219	Biotechnology I	5
BTX 220	Biotechnology II	5
BTX 221	Workplace Learning: Biotechnology	3-6
BTX 226	Advanced Topics in Biotechnology (minimum of two sections required)	3
BTX 226	Advanced Topics in Biotechnology (minimum of two sections required)	3
BTX 226	Advanced Topics in Biotechnology	3
or HRT 134	Micropropagation of Plants	
or BIO 231	Cell Biology	
Total Credit Hours		**60-63**

Full-Time Academic Plan

Missouri Civics Examination. Students entering college for the very first time in fall 2019 and who intend to complete an associate's degree must successfully complete a civics examination. **Information on who is eligible for a waiver can be found on the STLCC website (https://stlcc.edu/programs-academics/missouri-civics-exam.aspx)**.

PLEASE NOTE: If you originally enrolled at STLCC prior to Fall 2025, you may need to view an **archived catalog (http://catalog.stlcc.edu/archived-catalogs/)** for your correct program requirements. Please speak with an advisor or the program coordinator for more information.

Code	Title	Hours	Prerequisites	Milestones/Notes
First Year				
Fall				
BIO 140	Principles of Biology I (MOTR BIOL 150L)	5	MTH 140 or MTH 140S or MTH 160S with a minimum grade of "C" or placement into MTH 160, and Reading Proficiency	Gateway Course, Critical Course
BTX 104	Basic Laboratory Methods for Biotechnology	3	Placement into MTH 140 or higher or completion of MTH 140S with a minimum grade of "C", and Reading Proficiency	Gateway course, Exploratory course, Critical course
BTX 152	Quantitative Methods in Biotechnology	2	Placement into MTH 140 or completion of MTH 140S with a minimum grade of "C" or better, CHM 101 with a minimum grade of "C" or one year of high school chemistry, and Reading Proficiency	
MTH 160	Precalculus Algebra (MOTR MATH 130)	3	MTH 140 (or MTH 140S) with a minimum grade of "C" or satisfactory score on placement test, and Reading Proficiency	
	Credit Hours	**13**		
Spring				
BTX 219	Biotechnology I	5	BTX 104 or BIO 104 with a minimum grade of "C", BIO 140 with a minimum grade of "C", and Reading Proficiency	
BTX 226	Advanced Topics in Biotechnology	3	Concurrent or prior enrollment in BTX 219 or BIO 219 with a minimum grade of "C" and Reading Proficiency	A minimum of two Advanced Topics must be taken. Possible topics may include QPCR, Advanced Cell Culture Techniques, Bioinformatics. The third Advanced Topics may be substituted with HRT 134 Micropropagation of Plants or BIO 231 Cell Biology.
ENG 101 or 102	College Composition I (MOTR ENGL 100) or College Composition II (MOTR ENGL 200)	3	Placement score or ENG 030 or ENG 070 with a grade of "C" or better or recommendation of department and Reading Proficiency or concurrent enrollment in RDG 079	
XXX xxx	Social & Behavioral Sciences: Civics Requirement (http://catalog.stlcc.edu/general-education/)	3		
	Credit Hours	**14**		

Summer				
CHM 105	General Chemistry I (MOTR CHEM 150L)	5	MTH 140 (or MTH 140S or at least one and a half years of high school algebra) and CHM 101 with a minimum grade of "C" or one year of high school chemistry, and Reading Proficiency	
	Credit Hours	**5**		
Second Year				
Fall				
BIO 225	Genetics	3	BIO 140 with a minimum grade of "C" and Reading Proficiency	
BIO 235	Genetics Laboratory	2	BIO 140 with a minimum grade of "C", concurrent or prior enrollment in BIO 225 with a minimum grade of "C", and Reading Proficiency	
BTX 218	Microbiology for Biotechnology	4	BIO 140 and CHM 105 with minimum grades of "C" and Reading Proficiency	
BTX 226	Advanced Topics in Biotechnology	3	Concurrent or prior enrollment in BTX 219 or BIO 219 with a minimum grade of "C" and Reading Proficiency	A minimum of two Advanced Topics must be taken. Possible topics may include QPCR, Advanced Cell Culture Techniques, Bioinformatics. The third Advanced Topics may be substituted with HRT 134 Micropropagation of Plants or BIO 231 Cell Biology.
	Credit Hours	**12**		
Spring				
BTX 220	Biotechnology II	5	BTX 219 or BIO 219 with a minimum grade of "C" and Reading Proficiency	
BTX 221	Workplace Learning: Biotechnology	3-6	Concurrent or prior enrollment in BTX 220 or BIO 220 with a minimum grade of "C" and Reading Proficiency	3-6 credits may be taken
BTX 228	Research and Presentation Skills for the Life Sciences	2	Entry into this course must be approved by the program coordinator, and Reading Proficiency	
COM 101 or 201 or 107	Oral Communication I (MOTR COMM 100) or Interpersonal Communication (MOTR COMM 120) or Public Speaking (MOTR COMM 110)	3	Concurrent enrollment in ENG 070 or Reading Proficiency	
	Credit Hours	**13-16**		
Summer				
BTX 226	Advanced Topics in Biotechnology	3	Concurrent or prior enrollment in BTX 219 or BIO 219 with a minimum grade of "C" and Reading Proficiency	A minimum of two Advanced Topics must be taken. Possible topics may include QPCR, Advanced Cell Culture Techniques, Bioinformatics. The third Advanced Topics may be substituted with HRT 134 Micropropagation of Plants or BIO 231 Cell Biology.
	Credit Hours	**3**		
	Total Credit Hours	**60-63**		

Critical Courses: Critical courses are most important to a student's declared major and most strongly predict later success in the major. A critical course requires a minimal grade to progress to higher-level courses.

Exploratory Courses: Exploratory courses are first-semester courses that introduce the program and career field.

Gateway Courses: Gateway courses are courses in many career pathways that must be completed before progression in higher-level courses. These may be the same as critical and/or exploratory courses.

*Click on the hyperlinked course number to view additional information about the course.

**Students completing a course that has been assigned a MOTR number may transfer that course to any public institution in Missouri. Those who complete CORE 42 requirements will have that verification on their transcript.

*** It is your responsibility to verify that the courses listed above will transfer to the four-year institution of your choice. Maximize your transfer credits/classes by meeting with an academic advisor.

Part-Time Academic Plan

Missouri Civics Examination. Students entering college for the very first time in fall 2019 and who intend to complete an associate's degree must successfully complete a civics examination. **Information on who is eligible for a waiver can be found on the STLCC website (https://stlcc.edu/programs-academics/missouri-civics-exam.aspx)**.

PLEASE NOTE: If you originally enrolled at STLCC prior to Fall 2025, you may need to view an **archived catalog (http://catalog.stlcc.edu/archived-catalogs/)** for your correct program requirements. Please speak with an advisor or the program coordinator for more information.

Code	Title	Hours	Prerequisites	Milestones/Notes
First Year				
Fall				
BIO 140	Principles of Biology I (MOTR BIOL 150L)	5	MTH 140 or MTH 140S or MTH 160S with a minimum grade of "C" or placement into MTH 160, and Reading Proficiency	Gateway Course, Critical Course
BTX 104	Basic Laboratory Methods for Biotechnology	3	Placement into MTH 140 or higher or completion of MTH 140S with a minimum grade of "C", and Reading Proficiency	Gateway Course, Exploratory Course, Critical Course
	Credit Hours	**8**		
Spring				
BTX 152	Quantitative Methods in Biotechnology	2	Placement into MTH 140 or completion of MTH 140S with a minimum grade of "C" or better, CHM 101 with a minimum grade of "C" or one year of high school chemistry, and Reading Proficiency	
MTH 160	Precalculus Algebra (MOTR MATH 130)	3	MTH 140 (or MTH 140S) with a minimum grade of "C" or satisfactory score on placement test, and Reading Proficiency	
ENG 101 or 102	College Composition I (MOTR ENGL 100) or College Composition II (MOTR ENGL 200)	3	Placement score or ENG 030 or ENG 070 with a grade of "C" or better or recommendation of department and Reading Proficiency or concurrent enrollment in RDG 079	
	Credit Hours	**8**		

Summer				
CHM 105	General Chemistry I (MOTR CHEM 150L)	5	MTH 140 (or MTH 140S or at least one and a half years of high school algebra) and CHM 101 with a minimum grade of "C" or one year of high school chemistry, and Reading Proficiency	
	Credit Hours	**5**		
Second Year				
Fall				
BIO 225	Genetics	3	BIO 140 with a minimum grade of "C" and Reading Proficiency	
BIO 235	Genetics Laboratory	2	BIO 140 with a minimum grade of "C", concurrent or prior enrollment in BIO 225 with a minimum grade of "C", and Reading Proficiency	
XXX xxx	Social & Behavioral Sciences: Civics Requirement (http://catalog.stlcc.edu/general-education/)	3		
	Credit Hours	**8**		
Spring				
BTX 219	Biotechnology I	5	BTX 104 or BIO 104 with a minimum grade of "C", BIO 140 with a minimum grade of "C", and Reading Proficiency	
BTX 226	Advanced Topics in Biotechnology	3	Concurrent or prior enrollment in BTX 219 or BIO 219 with a minimum grade of "C" and Reading Proficiency	A minimum of two Advanced Topics must be taken. Possible topics may include QPCR, Advanced Cell Culture Techniques, Bioinformatics. The third Advanced Topics may be substituted with HRT 134 Micropropagation of Plants or BIO 231 Cell Biology.
	Credit Hours	**8**		
Summer				
BTX 226	Advanced Topics in Biotechnology	3	Concurrent or prior enrollment in BTX 219 or BIO 219 with a minimum grade of "C" and Reading Proficiency	A minimum of two Advanced Topics must be taken. Possible topics may include QPCR, Advanced Cell Culture Techniques, Bioinformatics. The third Advanced Topics may be substituted with HRT 134 Micropropagation of Plants or BIO 231 Cell Biology.
	Credit Hours	**3**		
Third Year				
Fall				
BTX 218	Microbiology for Biotechnology	4	BIO 140 and CHM 105 with minimum grades of "C" and Reading Proficiency	
BTX 226	Advanced Topics in Biotechnology	3	Concurrent or prior enrollment in BTX 219 or BIO 219 with a minimum grade of "C" and Reading Proficiency	A minimum of two Advanced Topics must be taken. Possible topics may include QPCR, Advanced Cell Culture Techniques, Bioinformatics. The third Advanced Topics may be substituted with HRT 134 Micropropagation of Plants or BIO 231 Cell Biology.
	Credit Hours	**7**		

Spring				
BTX 220	Biotechnology II	5	BTX 219 or BIO 219 with a minimum grade of "C" and Reading Proficiency	
BTX 221	Workplace Learning: Biotechnology	3-6	Concurrent or prior enrollment in BTX 220 or BIO 220 with a minimum grade of "C" and Reading Proficiency	3-6 credits may be taken
BTX 228	Research and Presentation Skills for the Life Sciences	2	Entry into this course must be approved by the program coordinator, and Reading Proficiency	
	Credit Hours	**10-13**		
Summer				
COM 101 or 201 or 107	Oral Communication I (MOTR COMM 100) or Interpersonal Communication (MOTR COMM 120) or Public Speaking (MOTR COMM 110)	3	Concurrent enrollment in ENG 070 or Reading Proficiency	
	Credit Hours	**3**		
	Total Credit Hours	**60-63**		

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