

Biotechnology

THE PROGRAMS

Biotechnology is the development, use, or manufacture of materials of biological origin to provide goods and services in a broad spectrum of applications. The industry is a growing contributor to regional and national economic output and is an important emerging industry that is expected to contribute dramatically to the 21st century economy. It is thus an excellent career choice for students. The department offers a variety of program options leading to different degree or certificate outcomes that depend on individual career goals and interests. The field is diverse and accounts for a wide range of products including traditional pharmaceuticals, biologics and biopharmaceuticals, medical devices, enzymes, genetically engineered plants and modified food, natural products extracted from botanicals, and biofuels. The growth in size and number of biotech companies in the state over the past 5-7 years has been considerable and this trend is expected to continue.

PREREQUISITES/PREPARATORY NOTES

It is the student's responsibility to examine each course description for details of prerequisite classes or preparation. Those prerequisites must be satisfied before the designated class may be taken and may require extra time to complete the program. Consultation with departmental personnel is highly recommended before students enter a program of study.

CLASS AVAILABILITY

The semesters in which courses are taught are listed below. Students should check the semester class schedule for day/evening availability and modifications caused by varying enrollment.

BIOMANUFACTURING

Jordan Campus JHS 254C
(801) 957-2851
www.slcc.edu/biomanufacturing

Academic Advisor
SI 209, (801) 957-4858

Instructor: Vivian Ngan-Winward

Estimated cost of books/supplies per semester (depending on course of study)	\$300+
Lab coats	\$25
Lab fees per semester	\$30

The courses of study available in the Biomanufacturing Program provide students with training for entry- to mid- level positions at companies manufacturing biotechnological products. The program's curriculum is driven and supported by the local biomanufacturing industry, and focuses on using innovative practical activities to deliver the hands-on experience students require for the effective mastery of concepts and skills. Classes are taught by faculty with extensive experience in the biotechnology manufacturing industry. The main biomanufacturing sectors represented in the state are companies specializing in medical devices, natural products, pharmaceuticals, and a number of contract testing and research organizations. Local companies are anticipating that their skilled workforce needs will be fulfilled by the well-trained talent produced by the Biomanufacturing Program.

CERTIFICATE OF COMPLETION^{CTE} BIOMANUFACTURING

(minimum 30 hours required)

The Biomanufacturing Certificate of Completion is intended to be a short but intensive training program that can be completed in two semesters. Students will be introduced to the history of biotechnology and the local biomanufacturing industry, including the typical manufacturing process and career paths; master specific skills, including effective communication and documentation, workplace safety, quality control activities, and critical thinking; demonstrate their understanding of the various aspects of quality systems and regulations governing the biomanufacturing industry; reinforce concepts and skills learned by participating as a member of team that manufactures a specified quantity of a real biotechnological product. Students desiring additional biomanufacturing training can continue with the Biomanufacturing Diploma and/or the Biomanufacturing AAS tracks.

GENERAL EDUCATION REQUIREMENTS (16-17 CREDITS)

COMPOSITION (3 CREDITS)

COURSE	CR	SEM	PREREQUISITES
ENGL 1010 Intro to Writing	3	A	WRITG 0990 or placement score

QUANTITATIVE STUDIES (4 CREDITS)

COURSE	CR	SEM	PREREQUISITES
MATH 1010 Interm Algebra	4	A	MATH 0990 and RDG 0900 w/C or better or placement score

COMMUNICATION

Any Approved Communications course. See pp 23-27 for options.

HUMAN RELATIONS

Any Approved 3- credit Human Relations course. See pp 23-27 for options.

DISTRIBUTION AREAS

Choose an additional 3-4 credit hours from one of the following distribution areas

COURSE	CR	SEM	PREREQUISITES
Biological Science (BS)	3-4	A	RDG 0900 w/c or better
Fine Arts (FA)	3-4	A	none
Humanities (HU)	3	A	none
Interdisciplinary (ID)	3-4	A	none
Physical Science (PS)	3	A	none
Social Science (SS)	3	A	none

See pp. 23-27 for options in each of these categories.

MAJOR COURSE REQUIREMENTS (14 CREDITS)

COURSE	CR	SEM	PREREQUISITES
BUS 1050 Foundat. of Business	3	A	none
OR			
MKTG 1050 Consumerism (ID)	3	A	none
BMAN 1110 Int Biomanufacturing (ID)	3	F, Sp	none
BMAN 1120 Basic Bioman Skills	1	F, Sp	BMAN 1110 (can be taken concurrently), or instructor's approval
BMAN 1150 Bioman Qual Sys & Reg	3	F, Sp	BMAN 1110 and BMAN 1120 w/C or better, or instructor's approval
BMAN 1180 Bioman Experience	4	F, Sp	BMAN 1110 and BMAN 1120 w/C or better, or instructor's approval

ADVISING NOTES

Students successfully completing BMAN 1150 will receive a Certificate of Proficiency in Quality Systems and Regulations. This certificate recognizes their mastery of the concepts and

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Currently, three emphases for the Biomanufacturing AAS are available:

- Science & Technology
- Manufacturing Technology
- Lean Production & Six Sigma

The Science & Technology emphasis focuses on the current innovations driving biotechnology product research and development. This would be a good emphasis for students interested in the science and technology aspects of manufactured biotechnology products.

The Manufacturing Technology emphasis focuses on the manufacturing process. This would be a good emphasis for students interested in the mechanics and engineering aspects of biomanufacturing.

The Lean Production & Six Sigma emphasis focuses on the production philosophy that companies must adopt to minimize waste and product defects in order to maximize profit and customer satisfaction. This would be a good emphasis for students interested in the quality assurance and business management aspects of the biomanufacturing industry.

In addition to the General Education and major course requirements, the student will select the set of electives required for his/her chosen AAS emphasis.

GENERAL EDUCATION REQUIREMENTS (16-17 CREDITS)

COMPOSITION (3 CREDITS)

COURSE	CR	SEM	PREREQUISITES
ENGL 1010 Intro to Writing	3	A	WRITG 0990 or placement score

QUANTITATIVE LITERACY (4 CREDITS)

COURSE	CR	SEM	PREREQUISITES
MATH 1010 Interm Algebra	4	A	MATH 0990 and RDG 0900 w/C or better or placement score

COMMUNICATION

Any Approved Communications course. See pp 23-27 for options.

HUMAN RELATIONS

Any Approved 3- credit Human Relations course. See pp 23-27 for options.

DISTRIBUTION AREAS

Choose an additional 3-4 credit hours from one of the following distribution areas

COURSE	CR	SEM	PREREQUISITES
Biological Science (BS)	3-4	A	RDG 0900 w/C or better
Fine Arts (FA)	3-4	A	none
Humanities (HU)	3	A	none
Interdisciplinary (ID)	3-4	A	none
Physical Science (PS)	3	A	none
Social Science (SS)	3	A	none

See pp. 23-27 for options in each of these categories.

MAJOR COURSE REQUIREMENTS (38 CREDITS)

COURSE	CR	SEM	PREREQUISITES
BUS 1050 Foundat. of Business	3	A	none
OR			
MKTG 1050 Consumerism (ID)	3	A	none
BMAN 1110 Int Biomanufacturing (ID)	3	F, Sp	none
BMAN 1120 Basic Bioman Skills	1	F, Sp	BMAN 1110 (can be taken concurrently) or instructor's approval

BMAN 1150 Bioman Qual Sys & Reg	3	F, Sp	BMAN 1110 and BMAN 1120, w/C or better, or instructor's approval
BMAN 1180 Bioman Experience	4	F, Sp	BMAN 1110 and BMAN 1120, w/C or better, or instructor's approval
BIOL 1610 College Biology I (BS)	4	A	MATH and RDG 0990 w/C or better (or equivalent placement)
BIOL 1615 College Biology I Lab	0	A	w/BIOL 1610
BIOL 2060 Microbiology	4	A	BIOL 1610/1615 w/C or better
BIOL 2065 Microbiology Lab	0	A	w/BIOL 2060
CHEM 1110 Elem Chemistry	4	A	MATH 1010 or equiv
CHEM 1115 Elem Chemistry Lab	1	A	w/CHEM 1110
BTEC 2010 Applied Molecular Biology	4	F, Sp	BTEC 1010 and BTEC 1015 (or BMAN 1120) and BIOL 1610 (C or better in all)
BMAN 2110 Good Manuf Practices	3	F, Sp	BMAN 1150 and BMAN 1180 w/C or better, or instructor's approval
BMAN 2120 Verification and Validation	2	F, Sp	BMAN 1150 and BMAN 1180 w/C or better, or instructor's approval
BMAN 2130 Measurement Fundamentals	2	F, Sp	BMAN 1150 and BMAN 1180 w/C or better, or instructor's approval

ELECTIVES FOR SCIENCE AND TECHNOLOGY EMPHASIS (11-14 CREDITS)

COURSE	CR	SEM	PREREQUISITES
BTEC 2900 Special Topics	2-5	F, Sp	BTEC 1080, or BMAN 1180, and BTEC 2010 all w/C or better
ENGR 1050 Intro to Nanotechnology	3	F, Sp	none
BTEC 2060 Biotech Instrumentation	3	F, Sp	CHEM 1110 and CHEM 1115 w/C or better; BTEC 1080 or BTEC 2100, and BTEC 2010 or BMAN 1150 and BMAN 1180 w/C or better

ONE OF:

TECH 1010 Technology & the Future	3	F	none
ENVT 1300 Basic Toxicology	3	F	BIOL 1110, or instructor's approval
BMAN 1130 Bioengin in Society (ID)	3	TBD	none

ELECTIVES FOR MANUFACTURING EMPHASIS (12 CREDITS)

COURSE	CR	SEM	PREREQUISITES
BMAN 1130 Complex Devices Simplified	3	TBD	none
EDDT 1040 Intro to AutoCAD	3	A	none
EDDT 2340 Manufacturing Processes	2	F	EDDT 1040; w/EDDT 2350
EDDT 2350 Manufac Processes Lab	1	F	EDDT 2340
BTEC 2060 Biotech Instrumentation	3	F, Sp	BMAN 1110 and BMAN 1120, or instructor's approval

ELECTIVES FOR LEAN PRODUCTION AND SIX SIGMA EMPHASIS (13 CREDITS)

COURSE	CR	SEM	PREREQUISITES
MGT 2040 Business Statistics I	4	A	BUS 1050, MATH 1010 or FIN 1380, CIS 1020 or competency
MGT 2700 Prod & Ops Management	3	F	MATH 1050 or MATH 1090, MGT 2040, MGT 2350, or instructor's approval
MGT 2710 Qual Ctrl & Six Sigma	3	F	MGT 2040, MGT 2350, or instructor's approval
ONE OF:			
MGT 2720 Sup Chain Des & Mgmt	3	Sp	MGT 2700
MGT 2730 Lean Production	3	Sp	MGT 2700, MGT 2710

ADVISING NOTES

Students successfully completing the following courses or sets of courses will receive the specified Biomanufacturing Certificate of Proficiency.

- BMAN 1150 Quality Systems & Regulations
- BMAN 2110 Good Manufacturing Practices
- BMAN 2120 Verification & Validation
- BMAN 2130 Measurement Fundamentals
- BTEC 2900 Science & Technology
- BTEC 2060 Equipment Trouble-Shooting
- EDDT 2340 & EDDT 2350: Manufacturing Processes
- MGT 2710 Quality Control & Six Sigma
- MGT 2720 Supply Chain Design & Management
- MGT 2730 Lean Production
- TECH 1030

These certificates recognize mastery of the concepts and skills in these critical and foundational biomanufacturing-relevant courses. Certificates of Competency can be utilized by employers to assess the skill level of an individual in both the hiring and promotional processes.

FOR SCIENCE & TECHNOLOGY EMPHASIS

SAMPLE SCHEDULE			
FALL SEMESTER		SPRING SEMESTER	
ENGL 1010	3	DIST	3-4
MATH 1010	4	HR COURSE	3
BUS 1050	3	CHEM 1110	4
OR		CHEM 1115	1
MKTG 1050	3	BMAN 1150	3
BMAN 1110	3	BMAN 1180	4
BMAN 1120	1	TOTAL	18-19
ENGR 1050	3		
TOTAL	17		
2ND FALL SEMESTER		2ND SPRING SEMESTER	
BMAN 2110	3	BTEC 2010	4
BIOL 1610	4	BTEC 2060	3
BIOL 1615	0	BIOL 2060	4
BMAN 2120	2	BIOL 2065	0
CM COURSE	3	BMAN 2130	2
ELECT	3	BTEC 2900	2-5
TOTAL	15	TOTAL	15-18

FOR MANUFACTURING TECHNOLOGY EMPHASIS

SAMPLE SCHEDULE			
FALL SEMESTER		SPRING SEMESTER	
ENGL 1010	3	DIST	3-4
MATH 1010	4	BIOL 1610	4
BUS 1050	3	BIOL 1615	0
OR		EDDT 1040	3
MKTG 1050	3	BMAN 1150	3
BMAN 1110	3	BMAN 1180	4
BMAN 1120	1	TOTAL	17-18
TECH 1030	3		
TOTAL	17		
2nd FALL SEMESTER		2nd SPRING SEMESTER	
BMAN 2110	3	CM COURSE	3
EDDT 2340	2	HR COURSE	3
EDDT 2350	1	BIOL 2060	4
CHEM 1110	4	BIOL 2065	0
CHEM 1115	1	BMAN 2120	2
BTEC 2010	4	BMAN 2130	2
BTEC 2060	3	TOTAL	14
TOTAL	18		

FOR LEAN PRODUCTION & SIX SIGMA EMPHASIS

SAMPLE SCHEDULE			
FALL SEMESTER		SPRING SEMESTER	
ENGL 1010	3	CM COURSE	3
MATH 1010	4	BIOL 1610	4
BUS 1050	3	BIOL 1615	0
OR		MGT 2040	4
MKTG 1050	3	BMAN 1150	3
BMAN 1110	3	BMAN 1180	4
BMAN 1120	1	TOTAL	18
DIST	3-4		
TOTAL	17-18		
2ND FALL SEMESTER		2ND SPRING SEMESTER	
BMAN 2110	3	BIOL 2060	4
MGT 2700	3	BIOL 2065	0
MGT 2710	3	BTEC 2010	4
CHEM 1110	4	BMAN 2120	2
CHEM 1115	1	BMAN 2130	2
HR COURSE	3	ELECTIVE	3
TOTAL	17	TOTAL	15

BIOTECHNOLOGY

Jordan Campus JHS 254C

(801) 957-2851

www.slcc.edu/biotech

Academic Advisor

SI 209, (801) 957-4858

JHS 047E, (801) 957-6407

Assistant Professors: Charles Rettberg, Jean Bower

The Biotechnology course of study provides students with training that prepares them for entry- to mid- level positions in research oriented environments. The program's curriculum is driven and supported by the local Biotechnology industry, and focuses on using innovative practical activities to deliver the hands-on experience students require for the effective mastery of concepts and skills. Classes are taught by faculty with extensive experience in research settings. Students may choose one of two degree paths depending on individual goals and expectations.

ASSOCIATE OF SCIENCE (A.S.) DEGREE

The degree includes a full complement of general education and skills-based biotechnology courses. The program provides students with a broad foundation upon which to continue their studies in the sciences. The A.S. degree is primarily designed to transfer to Utah Valley University's (UVU) baccalaureate program in Biotechnology. Students may choose to take upper division classes at UVU's home campus in Orem, Utah, or they may choose to take upper division coursework as evening classes at the SLCC Jordan Campus. Students should note that other

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lower division coursework beyond what is listed in the A.S. degree will be required to complete the baccalaureate program in Biotechnology at UVU. See the SLCC Biotechnology homepage or the SLCC University Center homepage for the most current transfer information:

www.slcc.edu/universitycenter/programs
www.slcc.edu/biotech

ASSOCIATE OF APPLIED SCIENCE^{CTE} (A.A.S.) DEGREE

This degree requires students to acquire comprehensive skills and knowledge relative to a wide range of biotechnology activities. Students completing the A.A.S. degree will be well positioned for entry to mid-level employment in a life science laboratory. Many of the courses obtained through the AAS degree can be transferred to Utah Valley University's baccalaureate degree in Biotechnology should students wish to continue their studies at a higher level. See the advising notes below for more information.

ASSOCIATE OF SCIENCE (AS) TRANSFER DEGREE IN BIOTECHNOLOGY

(minimum 60 credit hours required)

GENERAL EDUCATION REQUIREMENTS (33 CREDITS)

COURSE	CR	SEM	PREREQUISITES
COMPOSITION (6 CREDITS)			
ENGL 1010 Introduction to Writing	3	A	WRTG 0990 or placement score
ENGL 2010 Intermediate Writing	3	A	ENGL 1010
QUANTITATIVE LITERACY (4 CREDITS)			
MATH 1050 College Algebra	4	A	MATH 1010 and RDG 0990 C or better or placement scores
AMERICAN INSTITUTIONS (CHOOSE ANY ONE OF THE FOLLOWING FOR 3 CREDITS)			
ECON 1740	3	A	RDG 0990 C or better or placement score
OR			
HIST 1700	3	A	RDG 0990 C or better or placement score
OR			
POLS 1100	3	A	RDG 0990 C or better or placement score
LIFELONG WELLNESS (CHOOSE AN HLAC COURSE FOR 1 CREDIT)			
HLAC	1	A	none
(choose depth or intensive for 3 credits)			
COMPUTER LITERACY			
Choice	3	A	none
DISTRIBUTION AREAS (16 CREDITS)			
Complete the following distribution (BS) courses:			
BIOL 1610 Col Bio I (BS) + Lab (1615)	4	A	MATH and RDG 0990 w/C or better (or equivalent placement)

Also, choose one course from each of the following distribution areas. One of the courses must also be a Diversity course (DV).

Fine Arts (FA)	3	A	none
Humanities (HU)	3	A	none
Interdisciplinary (ID)	3	A	none
Social Science (SS)	3	A	none
Physical Science (PS) is exempted; CHEM 1210 is required for the program			
See pp. 23-27 for options in each of these categories.			

MAJOR COURSE REQUIREMENTS (27-29 CREDITS)

COURSE	CR	SEM	PREREQUISITES
BTEC 1010 Intro to Biotechnology	3	F/Sp	MATH and RDG 0990 w/C or better (or equivalent placement) w/BTEC 1015
BTEC 1015 Intro to Biotechnology Lab	1	F/Sp	MATH and RDG 0990 w/C or better (or equivalent placement) w/BTEC 1010
BTEC 2010 Applied Molecular Biology	3	F/Sp	BTEC 1010, BTEC 1015, and BIOL 1610 w/C or better in all
BTEC 2020 Biomolec Sep and Analysis	3	F	BTEC 2010 w/C or better
BTEC 2030 Cell Culture	2	F/Sp	BTEC 2010 w/C or better
BTEC 2040 Advanced Molec Methods	3	Sp	BTEC 2010 C or better
CHEM 1210 General Chemistry I	4	F/Sp	Math 1050 C or better
CHEM 1215 General Chemistry I Lab	1	F/Sp	w/CHEM 1210
CHEM 1220 General Chemistry II	4	Sp/Su	CHEM 1210
CHEM 1225 General Chemistry II Lab	1	Sp/Su	w/CHEM 1220

ELECTIVES (CHOOSE ONE OF THE FOLLOWING ELECTIVES FOR 2.4 CREDITS)

BTEC 1060 NucAcidProtBchm	2	Sp	BTEC 1010 and BIOL 1610
BTEC 1080 Biotechnology Experience	3	A	BTEC 1010 and BTEC 1015 w/C or better
BMAN 1150 Bioman Qlty Sys and Regs	3	F/Sp	BMAN 1110/1120 w/C or better
BMAN 1180 Biomanufact Experience	4	F/Sp	BMAN 1110/1120 w/C or better
BMAN 2110 Good Manufact Practices	3	TBD	BMAN 1150 and BMAN 1180 or w/C or better or instructor's approval
BMAN 2120 Verification and Validation	2	TBD	BMAN 1150 and BMAN 1180 w/C or better or instructor's approval

TRANSFER RECOMMENDATIONS

Upper division courses may be taken at the SLCC Jordan Campus with Utah Valley University at any time that the prerequisites for those courses have been satisfied. However, students should note that other lower division classes, beyond those listed in the Biotechnology A.S. degree, are required for the Bachelor of Science degree at Utah Valley University and can be taken at SLCC.

The following list indicates the additional courses required at the lower division level to earn a Bachelor's of Science degree from UVU:

COURSE	CR	SEM	PREREQUISITES
MATH 2040 Statistics	4	F	MATH 1050
BIOL 2060 Microbiology	4	A	BIOL 1610/1615 w/C or better
BIOL 2065 Microbiology Lab	0	A	w/BIOL 2060
CHEM 2310 Organic Chemistry I	4	F/Sp	Chem 1210, with CHEM 2315
CHEM 2315 Organic Chemistry I Lab	1	F/Sp	w/CHEM 2310
CHEM 2320 Organic Chemistry II	4	Sp/Su	Chem 2310, with CHEM 2325
CHEM 2325 Organic Chemistry II Lab	1	Sp/Su	w/CHEM 2320
PHYS 2010 College Physics I	4	A	MATH 1060, w/PHYS 2015
PHYS 2015 College Physics Lab I	1	A	w/PHYS 2010
PHYS 2020 College Physics II	4	A	PHYS 2010, w/PHYS 2025
PHYS 2025 College Physics Lab II	1	A	w/PHYS 2020

Contact the University Center for updated information.
www.slcc.edu/universitycenter/programs

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TRANSFER NOTE: Students completing the A.S. in Biotechnology at SLCC may consider transfer to science degree programs other than Biotechnology. Students should be aware that the full complement of their General Education courses and many of their major course requirements will transfer to any four year institution in the Utah System of Higher Education. However, Biotechnology courses are only articulated with Utah Valley University at this time. Consult your academic advisor for more information.

SAMPLE SCHEDULE

FALL SEMESTER		SPRING SEMESTER	
BTEC 1010	3	BTEC 2010	3
BTEC 1015	1	BTEC Elec	3
ENGL 1010	3	ENGL 2010	3
MATH 1050	4	Dist	6
BIOL 1610	4	TOTAL	15
BIOL 1615	0		
TOTAL	15		
2nd FALL SEMESTER		2nd SPRING SEMESTER	
BTEC 2020	3	BTEC 2030	2
CHEM 1210	4	BTEC 2040	3
CHEM 1215	1	CHEM 1220	4
Choice	3	CHEM 1225	1
Am INST	3	Dist	6
HLAC	1	TOTAL	16
TOTAL	15		

ASSOCIATE OF APPLIED SCIENCE^{CTE} (AAS) DEGREE IN BIOTECHNOLOGY

(minimum 64 credit hours required)

GENERAL EDUCATION REQUIREMENTS (15-16 CREDITS)

COURSE	CR	SEM	PREREQUISITES
COMPOSITION (3 CREDITS)			
ENGL 1010 Introduction to Writing	3	A	WRTG 0990 or placement score

QUANTITATIVE LITERACY (4 CREDITS)

MATH 1010 Intermediate Algebra	4	A	Math 0990 and RDG 0900 w/C or better or placement score
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COMMUNICATION (CHOOSE ONE OF THE FOLLOWING FOR 3 CREDITS)

Any Approved Communications course. See pp 23-27 for options.

HUMAN RELATIONS (CHOOSE ONE OF THE FOLLOWING FOR 2- 3 CREDITS)

Any Approved 3- credit Human Relations course. See pp 23-27 for options.

DISTRIBUTION AREAS (CHOOSE AN ADDITIONAL COURSE FROM ONE OF THE FOLLOWING DISTRIBUTION AREAS FOR 3 CREDITS)

Fine Arts (FA)	3	A	none
Humanities (HU)	3	A	none
Interdisciplinary (ID)	3	A	none
Physical Science (PS)	3	A	none
Social Science (SS)	3	A	none

See pp. 23-27 for options in each of these categories.

MAJOR COURSE REQUIREMENTS (49 CREDITS)

COURSE	CR	SEM	PREREQUISITES
BTEC 1010 Intro to Biotechnology	3	F/Sp	MATH and RDG 0990 w/C or better (or equivalent placement) w/BTEC 1015
BTEC 1015 Intro to Biotechnology Lab 1	1	F/Sp	MATH and RDG 0990 w/C or better (or equivalent placement) w/BTEC 1010
BTEC 1030 Biotechnology Seminar	2	Sp	BTEC 1010 and BTEC 1015 with w/C or better in both
BTEC 1060 Nuc Acid Prot Behm	2	Sp	BTEC 1010 and BIOL 1610
BTEC 1080 Biotechnology Experience	3	A	BTEC 1010 and BTEC 1015 with w/C or better in both

BTEC 2010 Applied Molecular Biology	3	F/Sp	BTEC 1010, BTEC 1015, and BIOL 1610 w/C or better in all
BTEC 2020 Biomolec Sep and Analysis	3	F	BTEC 2010 w/C or better
BTEC 2030 Cell Culture	2	F/Sp	BTEC 2010 w/C or better
BTEC 2040 Adv Molecular Methods	3	Sp	BTEC 2010 w/C or better
BTEC 2050 Bioinformatics	2	F	BTEC 2010
BTEC 2100 Biotechnology Research	4	A	BTEC 1080
BIOL 1610 Col Bio I (BS) + Lab (1615)	4	A	MATH and RDG 0990 w/C or better (or equivalent placement)
BIOL 2020 Cell Biology + Lab (2025)	4	F/Sp	BIOL 1610/1615 w/C or better
BIOL 2030 Genetics + Lab (2035)	4	F/Sp	BIOL 1610/1615 and Chem 1210 w/C or better
BIOL 2060 Microbiology + Lab (2065)	4	A	BIOL 1610/1615 w/C or better
CHEM 1110 Elem Chem	4	A	MATH 1010 or equiv
CHEM 1115 Elem Chem Lab	1	A	w/CHEM 1110

ADVISING NOTES

Students considering the possibility of transferring to a Bachelor's degree program at a future date should strongly consider the following course options:

- CHEM 1210/1215 in place of CHEM 1110/1115 since this course will transfer.
- COMM 1010 or COMM 1020 for the Communications elective since either class will satisfy the Student Choice elective as an Intensive course.
- LE 1220 for the Human Relations elective since this class will also satisfy the Social Science Distribution requirement of General Education electives.
- BMAN 1110 is a recommended course that is highly pertinent to Biotechnology work skills and satisfies the Interdisciplinary (ID) category of General Education

SAMPLE SCHEDULE

FALL SEMESTER		SPRING SEMESTER	
BTEC 1010	3	BTEC 1080	3
BTEC 1015	1	BTEC 1060	2
ENGL 1010	3	BTEC 2010	3
MATH 1010	4	CHEM 1110	4
BIOL 1610	4	CHEM 1115	1
BIOL 1615	0	BTEC 1030	2
COMM ELEC	3	Total	18
Total	15		
2nd FALL SEMESTER		2ND SPRING SEMESTER	
BTEC 2020	3	BTEC 2040	3
BIOL 2020	4	LE 1220	3
BIOL 2025	0	DIST	3
BIOL 2060	4	BIOL 2030	4
BIOL 2065	0	BIOL 2035	0
BTEC 2050	2	BTEC 2100	4
BTEC 2030	2	Total	17
Total	15		