CATALOG TERM: 2026-2027 **TOTAL UNITS REQUIRED = 120**

BIOTECHNOLOGY

- This worksheet is intended for supplemental use only. The University will use your Academic Requirements Report (ARR) to track your graduation requirements, including those for your major. Please continue to check your ARR for accuracy.
- If your ARR requires a correction, please submit an ARR Correction Form.
- Your Degree Planner (in mycsusm.edu) will display the following requirements in the University's recommended sequence.
- With the exception of BIOT 101, all courses used for the major and preparation for the major must be completed with a grade of C (2.0) or higher.
- All non-articulated courses MUST be reviewed and approved by a faculty advisor.
- A minimum of 40 units of upper-division coursework must be completed to meet graduation requirements.
- Course offerings are subject to change. Verify course availability with Biotechnology faculty advisor.

PREPARATION FOR THE MAJOR (33-34 UNITS)

✓	Course	Units
	CHEM 150: General Chemistry (*MATH 101, 103, 105 or MATH Category 1 or 2)	4
	CHEM 150L: General Chemistry Lab (+CHEM 150)	1
	CHEM 160: General Chemistry II (*CHEM 150, 150L; MATH 125, 126, 150 or 160)	3
	CHEM 201: Organic Chemistry (*CHEM 160 or 162)	3
	CHEM 201L: Organic Chemistry Lab (+CHEM 201)	2
	CHEM 202: Organic Chemistry (*CHEM 201, 201L)	3
	MATH 150: Calculus for the Life Sciences (*MATH 125, 126 or pass Calculus Readiness Diagnostic)	3
	PHYS 205: Physics for Biological Sciences I (+MATH 132, 150, or 160)	4
	PHYS 206: Physics for Biological Sciences II (*PHYS 201 or 205 and MATH 132, 150 or 160)	4

Select one of the following:

PSYC 100: Introduction to Psychology (3)
SOC 101: Introduction to Sociology (4)

✓	Course	Units
		3-4

Select one of the following:

PHIL 315: Ethics: Theory and Application
PHIL 340: Ethics and the Environment
PHIL 345: Bioethics and Medical Ethics

✓	Course	Units
		3

MAJOR REQUIREMENTS (51-57 UNITS)

Lower-division Coursework (19-21 units):

✓	Course	Units
	BIOT 101: Exploring Biotechnology	1
	BIOL 210: Introduction to Cellular and Molecular Biology (+CHEM 150)	4
	BIOL 211: Introduction to Organismal and Population Biology	4
	BIOL 215: Experimental Design and Statistical Analysis	4

**prerequisite; +pre-/co-requisite; ^may require an Academic Advisor or instructor signature to enroll;*
SCM courses can be double counted toward a minor in Supply Chain Management; R repeatable course, see Catalog for details.

BIOTECHNOLOGY

☐	BIOT 257: Foundations of Biotech (*BIOT 101)	2

Select one of the following options:

✓	Course	Units
☐	ACCT 203: Introduction to Accounting for Managers	4

OR

☐	ACCT 201: Introduction to Financial Accounting	3
☐	ACCT 202: Introduction to Managerial Accounting (*ACCT 201)	3

Upper-division Coursework (26-29 units):

✓	Course	Units
☐	BIOL 477A or 477B: Immunology (*BIOL 351 or BIOT 355)	3-5
☐	BIOT 355: Molecular Biotechnology (*BIOL 210; fall only)	5
☐	BIOT 356: Cellular Biotechnology (*BIOT 355; spring only)	5
☐	BIOT 457: Case Studies in Biotech Product Dev (*BIOT 257 and BIOT 355 or 356; spring only)	3
☐	BIOT 460: Scientific Communication in Biotechnology (*BIOT 355 or 356; spring only)	3
☐	MGMT 302^: Foundations of Management (*ACCT 201 and 202 or ACCT 203; MATH 132 or MATH 150)	2
☐	MKTG 302^: Foundations of Marketing (*ACCT 201 and 202 or 203 and MATH 132 or 150)	2

Choose 1 of the following courses:

CHEM 341: General Biochemistry (3) (*CHEM 201)
CHEM 351: Biochemistry I (4) (*CHEM 202, BIOL 211; students who select CHEM 351 must also take CHEM 352 below)

✓	Course	Units
☐		3-4

Elective Coursework (6-8 units):
Select 6-8 units of the following:

BIOL 367: Biology of Microorganisms (5) (*BIOL 210, 211; fall only)
BIOL 456: Molecular Med & Mechanisms of Disease (3) (*BIOL 351, 352, 353, 477A, 504, BIOT 355, 356 or consent)
BIOL 480: Bioinformatics (5) (*BIOL 351, 352 or BIOT 355)
BIOL 489A-C[R]: Introduction to Laboratory/Field Research (1-3) (*instructor consent)
BIOL 503A or 503B: Modern Molecular Biology & Genomics (3-5) (*BIOL 351 or BIOT 355)
BIOL 504: Virology (3) (*BIOL 351 or BIOT 355)
BIOL 567[R]: Current Trends in Biological Research (3) (*2 of the following: BIOL 351, 352, 353, 354)
BIOT 360: The Fundamentals of Clinical Research (4) (*BIOT 257)
BIOT 397: Biotechnology Industry Immersion (2) (*instructor consent)
BIOT 420: Plant Biotechnology (3) (*BIOL 351 or BIOT 355)
BIOT 450: Medical Biotechnology (*BIOL 351 or BIOT 355)
BIOT 497: Internship in Biotechnology (4) (*instructor consent)
BIOT 498: Stem-Cell Internship (12) (*BIOL 210, 211 and instructor consent; *www.csusm.edu/biotechnology/StemCell*)
CHEM 351L: Nucleic Acid Biochemistry Laboratory (2) (+CHEM 341 or 351)
CHEM 352: Biochemistry II (4) (*CHEM 351; spring only)
CHEM 352L: Protein Biochemistry Laboratory (2) (*CHEM 341 or 351 and CHEM 351L, BIOT 355, or BIOL 351)

BIOTECHNOLOGY

CHEM 450: Protein Structure and Function (3) (*CHEM 341 or 351; spring only)
MGMT 452^: Leadership in Organizations (4) (*MGMT 302 or 305)
MIS 302^: Foundations of Management Info Systems (2) (*ACCT 201 and 202 or 203 and MATH 132 or 150)
MIS 308^: Enterprise Systems (4) (*MIS 302 or 304)
OM 305^, SCM: Operations Management (4) (*BUS 204 or 304)
OM 406^, SCM: Prescriptive Analytics for Business Decision Making (4) (*BUS 322 or 324)
OM 428^, SCM: Supply Chain Management (4) (*{OM 302 or 305} and {BUS 322 or 324})
OM 441^, SCM: Business Logistics Management (4) (*{BUS 204 or 304} and {OM 302 or 305})
OM 442^, SCM: Procurement and Supplier Management (2) (*BUS 204 or 304)

✓	Course	Units