



# MS in Biotechnology with a Graduate Certificate in Engineering Leadership

**Total Semester Hours Required: 42**

Students pursuing the MS in Biotechnology with a Graduate Certificate in Engineering Leadership must complete 16 Semester Hours of Gordon Program coursework and 26 semester hours of Biotechnology coursework. Please refer to the Biotechnology home page for the most up-to-date course requirements and other program information.

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## Plan of Study

**All students will complete the following Gordon Engineering Leadership coursework and Biotechnology core coursework**

Gordon Engineering Leadership Program (16 Semester Hours Total)

ENLR 5121	Engineering Leadership 1	2
ENLR 5122	Engineering Leadership 2	2
ENLR 5131	Scientific Principles of Engineering 1	2
ENLR 5132	Scientific Principles of Engineering 2	2
ENLR 7440	Engineering Leadership Challenge Project 1	4
ENLR 7442	Engineering Leadership Challenge Project 2	4

Biotechnology Core Coursework (First Year) (17 Semester Hours Total)

BIOT 5120	Introduction to Biotechnology	3
BIOT 5219	The Biotech Enterprise	2
BIOT 5631	Cell Culture Processes	3
CHEM 5620	Protein Chemistry	3
BIOL 6299	Molecular Cell Biology for Biotechnology	3
BIOT 6214	Experimental Design and Biometrics	2
or PHSC 6214		
BIOT 5145	Basic Biotech Lab Skills	1

See next page for Biotechnology discipline coursework

**Students will also complete coursework for one of the the five  
Biotechnology disciplines**

Molecular Biotechnology Concentration (9 Semester Hours Total)

BIOT 5810	Cutting-Edge Apps in Mol Biotechnology	3
BIOT 5850	Higher Order Structure Analytics	3
BIOT 7245	Biotechnology Applications Laboratory	3

Process Sciences Concentration (9 Semester Hours Total)

BIOT 5560	Bioprocess Fundamentals	3
BIOT 5635	Downstream Processes	3
BIOT 7245	Biotechnology Applications Laboratory	3

Biopharmaceutical Analytical Sciences Concentration (9 Semester Hours  
Total)

CHEM 5550	Intro to Glycobiology and Glycoprotein Analytics	3
CHEM 5616	Protein Mass Spectrometry	3
BIOT 7245	Biotechnology Applications Laboratory	3

Pharmaceutical Technologies Concentration (9 Semester Hours Total)

BIOT 5700	Molecular Interactions of Proteins in Biopharma Form	3
BIOT 5640	Drug Product Processes for Biopharmaceuticals	3
BIOT 7245	Biotechnology Applications Laboratory	3

Biotechnology Enterprise Concentration (9 Semester Hours Total)

BIOT 5226	Biotech Entrepreneurship	3
BIOT 5225	Managing and Leading a Biotech Company	3
BIOT 5227	Economics and Marketing for Biotech Managers	3

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**Contact**

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