

Biomanufacturing (Minor)

Plan Requirements

Master's Requirements

Code	Title	Hours	Counts towards
Required Courses		9	

BEC 669	Biomanufacturing Research Projects		
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Select a minimum of eight credit hours of courses listed under "Elective Courses" below

Total Hours	9
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PhD Requirements

Code	Title	Hours	Counts towards
Required Courses		12	

BEC 669	Biomanufacturing Research Projects		
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Select a minimum of eight credit hours of courses listed under "Elective Courses" below

Total Hours	12
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Elective Courses

Code	Title	Hours	Counts towards
Select a minimum of eight credit hours of the following courses:		8	

BBS 526	Upstream Biomanchufacturing Laboratory	2	
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BEC 515	Biopharmaceutical Product Characterization Techniques	2	
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BEC 525	Molecular Biology for Biomanchufacturing	2	
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BEC 532	Foundations of Downstream Processing and Formulation	2	
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BEC 536	Introduction to Downstream Process Development	2	
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BEC 545	Cell Line Development for Biomanchufacturing	2	
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BEC 575	Global Regulatory Affairs for Medical Products	3	
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BEC 577	Advanced Biomanchufacturing and Biocatalysis	3	
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BEC 580	cGMP Fermentation Operations	2	
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BEC 583	Tissue Engineering Technologies	2	
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BEC 585	cGMP Downstream Operations	2	
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BEC 588	Animal Cell Culture Engineering	2	
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BEC 590	Industry Practicum in Biomanchufacturing	3	
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BEC 595	Special Topics in Biomanchufacturing	1-6	
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BIT 566	Animal Cell Culture Techniques	2	
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CHE 563	Fermentation of Recombinant Microorganisms	2	
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Total Hours	42-47
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Faculty

Full Professors

Ruben G. Carbonell

Amy Michele Grunden

Harold Henry Lamb

Paul Edward Mozdziaik

Balaji M. Rao

Heike Inge Ada Sederoff

John Douglas Sheppard

Associate Professors

Paul T. Hamilton

Gavin John Williams

Assistant Professor

Stefano Menegatti

Practice/Research/Teaching Professors

Kirill Efimenko

Gary Louis Gilleskie

Imara Yasmin Perera

John H. van Zanten

Emeritus Faculty

Michael Carl Flickinger

Instructors

Gregory Kale Buhrman

Hayley Flores

Sara Siegel