

Graduate Degree Plan

PhD in Quantitative & Computational Biosciences

Students Starting Academic Year: 2022-2023

General Degree Requirements:

- Completion of at least 180 term hours
- At least 30 of those term hours must be in Didactic courses
- Completion of at least three terms of Research Rotation before appointing a major advisor
- Students must maintain satisfactory academic progress as detailed in the Student Handbook

Year One Requirements:

Term 1:	GS-GS-6600	Foundations A: Molecules to Systems	3 (Didactic) <i>(two-term course)</i>	Total to Date
	GS-GS-6400	Foundations B: Biostatistics	2 (Didactic) <i>(two-term course)</i>	
	GS-GS-5101	Responsible Conduct of Research 1	1	
	GS-QC-5105	Seminar in Quantitative Biosciences	1	
	GS-QC-5110	Advanced Topics in QCB	1	
		Research Rotation/Elective Courses	4	
Total:			12 (5)	12 (5)

Programming Course Requirement:

Students must enroll in at least one of the following:

- GS-QC-6301 Practical Introduction to Scientific Programming in Python (Year 1, Term 1)
- GS-QC-6302 Computer-Aided Discovery Methods (Year 1, Term 4)

Term 2:	GS-GS-6600	Foundations A: Molecules to Systems	3 (Didactic) <i>(two-term course)</i>	Total to Date
	GS-GS-6400	Foundations B: Biostatistics	2 (Didactic) <i>(two-term course)</i>	
	GS-QC-6401	Quantitative & Computational Methods in Biosciences 1	4 (Didactic)	
	GS-QC-5105	Advanced Topics in QCB	1	
	GS-QC-5110	Seminar in Quantitative Biosciences	1	
	GS-QC-5030	Research Rotation	1	
Total:			12 (9)	24 (14)
Term 3:	GS-QC-6402	Quantitative & Computational Methods in Biosciences 2	4 (Didactic)	Total to Date
	GS-GS-5105	Scientific Writing	1	
	GS-QC-5105	Seminar in Quantitative Biosciences	1	
		Research Rotation/Elective Courses	6	
Total:			12 (4)	36 (18)
Term 4:	GS-QC-5301	QCB Research Design	3	Total to Date
	GS-QC-5100	Student Research Seminar	1	
	GS-QC-5105	Seminar in Quantitative Biosciences	1	
		Research Hours/Elective Courses	7	
Total:			12	48 (18)
Term 5:		Research Hours/Elective Courses	12	Total to Date
	Total:			12

Year Two Requirements:

Term 1:	GS-QC-5105	Seminar in Quantitative Biosciences	1	Total to Date
		Research Hours/Elective Courses	11	
	Total:		12	72 (18)
Term 2:	GS-GS-5102	Responsible Conduct of Research 2	1	Total to Date
	GS-QC-5105	Seminar in Quantitative Biosciences	1	
		Research Hours/Elective Courses	10	
	Total:		12	
Term 3:	GS-QC-5105	Seminar in Quantitative Biosciences	1	Total to Date
		Research Hours/Elective Courses	11	
	Total:		12	96 (18)

Student's Thesis Advisory Committee must be appointed by the end of Term 3 in the student's second year of enrollment.

Term 4:	GS-QC-5100	Student Research Seminar	1	Total to Date
	GS-QC-5105	Seminar in Quantitative Biosciences	1	
		Research Hours/Elective Courses	10	
	Total:		12	
Term 5:		Research Hours/Elective Courses	12	Total to Date
	Total:		12	120 (18)

Twelve additional didactic hours (inclusive of programming requirement) are required for a total of thirty (30)

Qualifying Exam Requirement:

- Must be taken by the end of the second year of enrollment.
- Student must complete all prerequisite activities defined by their program before taking the exam

Course Requirements beyond Year Two:

Year Three, Term 3:	GS-GS-5103	Responsible Conduct of Research 3	1
Year Four, Term 3:	GS-GS-5104	Responsible Conduct of Research 4	1

Recurring Requirements until Graduation:

Terms 1-4:	GS-QC-5105	Seminar in Quantitative Biosciences	As required
Term 4:	GS-QC-5100	Student Research Seminar	As required
Terms 1-5:	GS-QC-5050	Dissertation	As required*

**Students shall enroll in the number of credits of Dissertation needed to be enrolled full-time (12 credits) each term through graduation.*

Research Course Work:

GS-QC-5010	Readings
GS-QC-5030	Research Rotation
GS-QC-5040	Special Projects
GS-QC-5050	Dissertation

Additional Quantitative & Computational Biosciences program courses*:

GS-QC-6201	Applications to Biology of Computation
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**Students may select electives from open course options in all graduate programs.*

Courses may be viewed in the [AY22 Graduate School Bulletin](#)

Additionally, students may request to attend a limited number of courses offered by partner TMC institutions.

Contact qcb-grad@bcm.edu for details.

Course Requirement Checklist

PhD in Quantitative & Computational Biosciences

Students Starting Academic Year: 2022-2023

Foundations Courses (10 credits):				
	GS-GS-6600	Foundations A: Molecules to Systems	6	
	GS-GS-6400	Foundations B: Biostatistics	4	
Program Core Courses (8 credits):				
	GS-QC-6401	Quantitative & Computational Methods for Biosciences 1	4	
	GS-QC-6402	Quantitative & Computational Methods for Biosciences 2	4	
Programming Course (choose one from list - 3 credits):				
	GS-QC-6301	Practical Introduction to Scientific Programming in Python		
	GS-QC-6302	Computer-Aided Discovery Methods		
Didactic Elective Courses (at least 9 credits):				
Responsible Conduct of Research Courses (4 credits):				
	GS-GS-5101	Responsible Conduct of Research 1	1	
	GS-GS-5102	Responsible Conduct of Research 2	1	
	GS-GS-5103	Responsible Conduct of Research 3	1	
	GS-GS-5104	Responsible Conduct of Research 4	1	
Professional Development Course (1 credit):				
	GS-GS-5105	Scientific Writing	1	
Seminar/Journal Literature Courses:				
	GS-QC-5110	Advanced Topics in QCB	1	2 total cr.
<i>Required in terms 1 and 2 of the first year of study.</i>				
	GS-QC-5105	Seminar in Quantitative Biosciences	1	
<i>Required in terms 1-4 every year from matriculation through attainment of Permission-To-Write.</i>				
	GS-QC-5100	Student Research Seminar	1	
<i>Required in term 4 every year from matriculation through attainment of Permission-To-Write.</i>				
Research Hours:				
In each term, students enroll in the number of credits [beyond other coursework] needed to be enrolled full-time (minimum 1)				
	GS-QC-5030	Research Rotation	Var.	
<i>Taken each term when a mentor is not appointed (minimum 3 terms)</i>				
	GS-QC-5040	Special Projects	Var.	
<i>Taken each term after a mentor is appointed, and before candidacy is achieved.</i>				
	GS-QC-5050	Dissertation	Var.	
<i>Taken each term after a mentor is appointed, and after candidacy is achieved.</i>				