

MBB: suggested path			
year	Course #	Title	Credits
First Year	119:115/116	General Biology	4,4
	119:117	Bio Research Lab (Gen Bio Lab)	2
	160:161/162 or 160:163/164 (H=Honors)	General Chemistry I & II	4,4
	160:171	Intro. To Experimentation (Chem. Lab)	1
	640:151/152 or 640:135/138	Calculus I & II . Calc II may be replaced by Statistics: 960:401 (3cr) or Statistics 960:211(2cr) and 212(2cr)	4,4
	First Year students with AP Biology credit may opt for Intro to MBB Research lab 694:214 (3cr, Spring only) or 694:215 Honors (4cr, Fall only)		(3 or 4, see year 2)
Second Year	160:307/308 or 160:315/316 (H)	Organic Chemistry I & II	4,4
	160:309 or 311(H)	Organic Chemistry Lab (may be deferred to Year 3)	2
	750:203/204	Physics I & II (other Physics Lecture+Lab are allowed, see DN)	3,3
	750:205/206	Physics I & II Lab	1,1
	447:380	Genetics	4
	694:316 (4cr, Honors Fall only) or 694:315 (3cr, Spring only)	Intro to MBB Research lab (or take in First Year - see above)	3 or 4
	Student wanting the MBB Major Option 2 (P-Chem) may want Calc III (640:651) in Year 2		
Third Year	694:383 (Fall only)	MBB Seminar: careers in science (only for MBB majors)	1
	694:407 (Fall only) or 694:301 Fall, Spring	Molecular Biology & Biochemistry-I (mostly Biochem.)	3
	694:408 (Spring only)	Molecular Biology & Biochemistry-II (mostly Mol. Biol.)	3
	MBB electives (3x3 credits) see list below, typically split between Years 3 and 4		3,3,3
	694:381 Fall 694:382 Spring	MBB research in a P.I.'s lab, see below	3 3
	694:484 (Spring only)	MBB Seminar: Research Presentations (only for MBB majors)	1
Fourth Year	694:481 Fall 694:482 Spring Honors thesis option - see below	Continue with MBB research in a P.I.'s lab, see below	3 3
	Students doing the MBB Major Option 2 (P-Chem) take two semesters of P-Chem + 1 Elective - see below		
			3,3

MBB Electives --- see DN (Degree Navigator)

- Analytical Methods in Bioleogy (694:230 [Fall])
- Biochem. Pathways and Signal Transduction (694:411 [Fall])
- Proteomics & Functional Genomics (694:412 [Spring])
- Chromosomes and Epigenomics (694:413, [Fall])
- Membrane Dynamics (694:420 [Fall, but not always offered])
- Biology of Aging (694:421 [Spring, but not always offered])
- Gene Regulation in Cancer and Development (694:492 [Spring])

MBB Major Option I (9 credits) "Electives"

- Two 3-credit MBB electives
- One 400 level 3-credit elective from MBB or a department in the Division of Life Sciences (DLS) or approved by the UG Director

MBB Major Option II (13 credits) "P-Chem"

- Multivariable Calculus (640:251, 4) (Calculus [640:151,152](#) are required for this course)
- Physical Chemistry (160:327-328, 3,3) (requires 640:251 as a prerequisite) or Physical Chemistry: Biochemical Systems (160:341-342, 3,3). See DN for alternative P-Chem course numbers.
- One 3-credit MBB Elective course.

MBB Research Options (research in a P.I.'s lab)- only research in the third and fourth years counts towards the major – also see Degree Navigator (exceptions will need the UG Director's approval).

Lab Option I: Students must accumulate 12 or more credits of research

Lab Option II: Students accumulating 6-11 credits of research must take **an additional** MBB elective.

Non-lab option is almost never used, see DN and contact UG Director for more information.

MBB Dept. Honors Thesis: only in final year, see dept. web site and contact UG Director

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Requirements for the SAS Life Sciences Majors

Life Sciences Core Courses - most often-used format			
year	Course #	Title	Credits
First Year	119:115/116	General Biology	4,4
	119:117	Bio Research Lab (Gen Bio Lab)	2
	160:161/162 or 160:163/164 (H)	General Chemistry I & II	4,4
	160:171	Intro. To Experimentation (Chem. Lab)	1
	640:151/152 or 640:135/138	Calculus I & II . Calc II may be replaced by Statistics: 960:401 (4cr) or 960:211(2cr) and 212(2cr)	4,4
Second Year	160:307/308 or 160:315/316 (H)	Organic Chemistry I & II	4,4
	160:309 or 311	Organic Chemistry Lab this can be deferred to Year 3	2
	750:203/204	Physics I & II	3,3
	750:205/206	Physics I & II Lab	1,1
Total Credits			45

MBB (694)	Genetics (447)	CBN (146)	Biology (119)
avg/yr- 35	avg/yr- 50	avg/yr- 200	avg/yr- 450
Genetics (447:380) (4 cr) (2 nd yr)	Genetic Analysis I (447:384) (4 cr)	Genetics (447:380) (4 cr)	Genetics (447:380) (4 cr)
MBB-1 (mostly Biochem) (694:407) (3 cr) (3 rd yr Fall) or 694:301 (3 cr) (3 rd yr)	Biochemistry. (694:301 or 694:407) (3 cr)	Biochemistry. (694:301 or 407) (3 cr)	24 cr of Life Science Electives, (18 cr at 300-400 level) Including at least one of the following
MBB-2 (mostly Mol. Biol.) (3 cr) (694:408) (3 rd yr Spring)	Genetic Analysis II (447:385) (4 cr)	Fund. Neurobiology (146:270) (3 cr) & Fund. Cell & Devel. Biol. (146:245) (3 cr)	MBB Elective (694) (3 cr)
Introduction to Research (694:214 or 215) (1 st yr) or 315 or 316 (2 nd or 3 rd Yr). (3 cr)	Introduction to Research (447:203, 302, 303 or 315 or 694:214 215 or 316) (3 cr) or)		CBN Elective (146) (3 cr)
MBB Sem. 694:383- Careers (1 cr) (3 rd yr Fall Semester) 694:484- Presentations (1 cr) 4 th yr Spring	447:430 Effective Communication Skills in Genetics (3) or Thesis Writing (447:415)	Any 3 CBN Advanced courses (9-10 cr): Adv. Neuro I 146:445; Adv. Neuro II 146:447; Adv. Cell 146:470; Adv. Dev. 146:472; Immunology 146:474; Human Histology 146:322	Genetics Elective (447) (3 cr)
Course option II Multi Var. Calc (640:251) Phys Chem. (160:327/328) MBB Elective (3 cr)	Electives (12 cr) – Must be two elective courses from approved list. Other 6 credits may be research or lecture courses.	General Track (6-8 cr.) 2 x 300-400 level Life Science Elective (one must have lab included or associated)	Nat. Resource Elective (216) (3 c)
Course Option I 3 rd & 4 th 2 MBB Electives (6 cr) 1 MBB/DLS Elective (3 cr)		Honors Track (12 cr.) 1 x 300-400 level elective course (3 cr.) Honors Sem. (3 cr.); Honors Research (6 cr. over 2 semesters, written thesis and oral defense)	3 lab courses or courses with lab component (not GB Lab, research may fulfill 1 lab req.)
Research (required) I. 12 or more credits II. 6-11 cr + MBB Elec	Research (required) Research/Indep, Study (6 cr over two semesters project.)	Research (required for Honors only, 6 credits)	Research (optional, 6 cr max, Honors)