

GEP

Biology Major Requirements (updated 10/2016)

Degree Requirements: Biology majors may graduate with 38 or 39 courses instead of the usual 40 course requirement (assuming all GEP and major requirements have been met). The student retains the option to take 40 courses. The **38-40 courses are comprised of:** A) GEP Signature Core, B) GEP Variable courses, C) free electives, D) GEP Integrative Learning Courses, E) Major Requirements, and F) Overlays.

A. GEP Signature Core Courses All non-transfer students must take these 6 Courses at SJU.	Semester completed
1. PHL 154 – Moral Foundations	
2. THE 154 – Faith, Justice & the Catholic Tradition	
3. ENG 102 – Texts and Contexts (pre-req: ENG 101)	
4. HIS 154 – Forging the Modern World	
5. First Year Seminar	
6. Faith and Reason Course (pre-reqs: PHL 154 and THE 154). <i>See reverse side for an additional note on this requirement</i>	

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B. GEP Variable Course (Maximum 9 courses)	Course(s) required Please note students may earn AP credit and/or use transfer credits to meet these requirements.	Semester Completed
Fine & Performing Arts or Literature	One course	
Mathematics (Beauty)	Math 155 Fundamentals of Calc or Math 161 Calculus I or equiv.	
Natural Science	BIO 101 Biology I: Cells (1st semester 1 st year)	
Non-native Language	1-2 courses at placement level; Please Note: only one course is required if placed at the 301 level (or higher). If placed lower than 301, two courses are required.	
Social/Behavioral Science	One course	
Philosophy (Philosophical Anthropology)	One course (pre-req: PHL 154)	
Theology (Religious Difference)	One course - cannot be used to satisfy the diversity/globalization/non-Western area studies overlay requirement	
Writing	ENG 101 Craft of Language - A score of 4 or 5 on the English Literature or Language AP test fulfills this requirement.	

C. Free Electives (Minimum 7 courses) Note that the number of free electives may vary depending on AP credits, and number of courses required for the non-native language requirement. Seven electives assumes a 38-course sequence.	Semester completed
1.	
2.	
3.	
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7.	

D. GEP Integrative Learning Courses for Biology (3 courses)	Semester Completed
1. CHM 120 & 120L General Chemistry I + Lab (first semester freshman year)	
2. CHM 210 & 210L Organic Chemistry I + Lab (first semester sophomore year)	
3. PHY 101 & 101L General Physics I + Lab (first semester junior year)	

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E. Biology Major Requirements (13 courses) (Typical semester taken)			
Course	Semester completed	Course	Semester completed
1. BIO102 & 102L Biology II: Genetic and Evolutionary Biology (2nd semester 1 st year)		5. Group C: Evolution and Diversity of Life BIO 401 Animal Behavior BIO 409 Ecology BIO 406 Comparative Anatomy BIO 414 Plant Systematics BIO 419 Invertebrate Zoology BIO 420 Bioinformatics BIO 422 Applied & Environ. Microbiology BIO 423 Evolution	
2. BIO 201 & 201L Biology III: Organismic Biology (1 st semester sophomore year)			
<i>One course from each of the following groups (Group A, B, & C):</i>			
3. Group A: Cell Structure and Function BIO 402 Advanced Cell Biology BIO 404 Biochemistry BIO 408 Histology BIO 410 Light and Electron Microscopy BIO 411 Molecular Genetics BIO 412 Neurobiology BIO 416 Microbiology BIO 421 Molecular and Cellular Biophysics BIO 424 Biotechnology BIO 428 Histopathology		6-9. Four additional 400-level BIO courses (BIO 101, 102, 201 and CHM 120, 125 are pre-requisites for all 400 level BIO courses.)	
		10. CHM 125 & 125L General Chemistry II + Lab (2nd semester 1 st year)	
		11. CHM 215 & 215L Organic Chemistry II + Lab (2nd semester sophomore year)	
4. Group B: Systemic Organization BIO 261 Anatomy and Physiology II** BIO 403 Biometrics and Modeling BIO 405 Biomechanics BIO 407 Developmental Biology BIO 413 Plant Physiological Ecology BIO 415 Immunology BIO 417 Systemic Physiology BIO 425 Bacterial Pathogenesis		12. MAT 128 Applied Statistics (1 st semester 2 nd year)	
		13. PHY 102 & 102L General Physics II + Lab (2nd semester junior year)	

BIO 390 Seminar. In addition to the courses listed above, this BIO seminar is required each semester for sophomores, juniors, and seniors. Please note that this is a non-credit bearing course.

**Prerequisite: BIO 260 Anatomy and Physiology I. Students may count either BIO 260 plus BIO 261 or BIO 417 toward graduation, but not both.

F. Overlays - 3 overlays that may be combined with other GEP requirements above[unless otherwise noted], major courses, or electives	Semester Completed
1. Writing-Intensive (pre-req: ENG 101)	
2. Ethics-Intensive (pre-req: PHL 154)	
3. Diversity/Globalization/Non-Western	



Biology Major – Typical Course Sequence

See page 1-2 for Additional information on Major Requirements

Below is listed the typical curriculum for a Biology major (GEP) who chooses to use the 38-course option (133-136 credits). This schedule presumes that the student enters as a first-year student, without advanced placement in mathematics, English, etc. Students who are interested in declaring a major in Biology or changing their major to Biology from a different major should consult with Dr. Christina King Smith (Chair) or Dr. Julia Lee-Soety (Advising Coordinator) in the Department of Biology.

FIRST-YEAR	Fall*	BIO 101, 101L Cells (Nat Science req.) CHM 120, 120L Gen Chem I (ILC) MAT 120 [@] MAT 155 or MAT 161, or other Calc. I equivalent Non-Native Language I Elective First-Year seminar	Spring	BIO 102, 102L Genetics & Evolutionary Bio CHM 125, 125L Gen Chem II Non-Native Language II ENG 101 Texts and Contexts Elective
	Fall	BIO 201, 201L Organismic Bio CHM 210, 210L Org. Chem I (ILC) MAT 128 Applied Statistics PHL 154 Moral Foundations ENG 102 or Elective	Spring	BIO 4XX CHM 215, 215L Org. Chem II THE 154 Faith, Justice & Catholic Tradition Social Science Requirement Elective
SOPHOMORE YEAR**	Fall	BIO 4XX PHY 101, 101L Gen Physics I (ILC) PHL Anthropology HIS 154 Forging the Modern World Elective	Spring	BIO 4XX PHY 102, 102L Gen Physics II Religious Difference Elective
	Fall	BIO 4XX BIO 4XX Faith and Reason Elective	Spring	BIO 4XX BIO 4XX Art/Lit Elective Elective
JUNIOR YEAR**	Fall	BIO 4XX BIO 4XX Faith and Reason Elective	Spring	BIO 4XX BIO 4XX Art/Lit Elective Elective
	Fall	BIO 4XX BIO 4XX Faith and Reason Elective	Spring	BIO 4XX BIO 4XX Art/Lit Elective Elective
SENIOR YEAR**	Fall	BIO 4XX BIO 4XX Faith and Reason Elective	Spring	BIO 4XX BIO 4XX Art/Lit Elective Elective

* In the 38-course sequence, BIO majors typically complete either five or four courses in the fall semester of freshman year. Students are encouraged to discuss their first semester schedule with their academic advisor.

[@]MAT 155, MAT 161 or other Calc I equivalent is required. MAT 120 (The Mathematics of Modeling) satisfies an elective requirement.

** **BIO 390 Seminar.** In addition to the courses listed above, this BIO seminar is required each semester for sophomores, juniors, and seniors. **This is a non-credit bearing course.**