

BIOLOGY, B.S.

GENETICS, CELLULAR AND MOLECULAR BIOLOGY (GCMB)

(Fall 2017-Summer 2018)

BIOLOGY BS CORE COURSES & SUPPORTING COURSES (55 credits) *Note: 2.3 GPA required in BIOL/2.0 degree GPA

- _____ 4 BIOL 11700 Principles of Ecology & Evolution (C- or higher)
- _____ 4 BIOL 11900 Principles of Structure & Function (C- or higher)
- _____ 1 BIOL 12000 Resource Seminar
- _____ 3 BIOL 21700 Intermediate Ecology
- _____ 4 BIOL 21800 Genetics & Molecular Biology
- _____ 4 BIOL 21900 Principles of Functional Biology
- _____ 3 BIOL 49100 Senior Biology Seminar

SUPPORTING CHEMISTRY, MATH & PHYSICS COURSES

- _____ 4 PHYS 22000 General Physics
- _____ 4 PHYS 22100 General Physics
- _____ 4 CHM 11500 General Chemistry (C- or higher)
- _____ 4 CHM 11600 General Chemistry (C- or higher)
- _____ 4 CHM 25500/CHM 25400 or CHM 26100/CHM 25400 Organic Chemistry and Lab
- _____ 4 CHM 25600/CHM 25800 or CHM 26200/CHM 25800 Organic Chemistry and Lab
- _____ 4 Credits in MA 16500 Analytic Geometry & Calculus I or 3 Credits in MA 22900 Calc for Mang, Soc, & Bio Sciences
- _____ 3 STAT 24000 Statistical Methods for Biology
- _____ 3 STAT 34000 Elem Statistical Methods II

CONCENTRATION in GENETICS CELL/MOLECULAR (GCMB) (19 credits) *Note: grades of C- or higher required in BIOL/2.0 GPA

- _____ 3 BIOL 38100 Cell Biology
- _____ 3 BIOL 50600 Molecular Biology
- _____ 4 BIOL 50900 and **BIOL 58400** Molecular Biology & Applications/Molecular Biology Laboratory
- _____ 6 Credits in Genetics Cell/Molecular Electives: (BIOL 43700, 51600, 51800, 52410, 53700, 54000, 54400, 56500, or 56600, 56700, or FNR 50500)
 - _____ BIOL or FNR _____
 - _____ BIOL or FNR _____
- _____ 3 CHM 53300 Introductory Biochemistry I

A&S BS LIBERAL ARTS REQUIREMENTS (14 credits — credits may vary with double counting/language placement — see advisor)

- _____ 3 Second Semester Writing (C- or higher) (ENG W140 or ENG W233)
 - _____ 3 Speaking Requirement (C- or higher) (COM 11400 or HIST H125)
 - _____ 8 Credits Language Sequence (credit/placement required for 2 semesters of foreign language)
 - _____ FL 11 _____ FL 12 (one course at second semester level required)
- Options: (Arabic, French, German, Japanese, Latin, Spanish)

GENERAL EDUCATION REQUIREMENTS (33 Credits) *Note: grades of C- or higher required in Gen Ed/2.0

GPA **Up to 6 credits in Gen Ed GA1 to GB7 and 3 credits GCAP (C8) may originate in major discipline—see advisor for more information.

- _____ 3 GA1 Category A1 -- Written Communication (See Bulletin or myBLUEprint for **General Education** courses)
- _____ 3 GA2 Category A2 -- Speaking and Listening
- _____ 3 GA3 Category A3 -- Quantitative Reasoning
- _____ 3 GB4 Category B4 -- Scientific Ways of Knowing
- _____ 3 GB5 Category B5 -- Social & Behavioral Ways of Knowing
- _____ 3 GB6 Category B6 -- Humanistic and Artistic Ways of Knowing
- _____ 3 GB7/71 Category B7 or B71 -- Interdisciplinary or Creative Ways of Knowing
- _____ 9 Additional Credits -- Category A or B General Education courses
- _____ 3 **GCAP Category C8--Capstone Experience** (IPFW course only)

MINOR/ELECTIVES (to reach 120 credits):

IPFW Residency Requirements: _____ 32 credits at 200 level or above at IPFW _____ with 15 of 32 credits at 300-400 in major B.S. Requirements: _____ 120 credits _____ 30 credits 300-400 level _____ 2.3 GPA Major/2.0 Degree/Gen Ed _____ C- or above in Major/Gen Ed

BIOLOGY, B.S.

PLAN—GENETICS, CELLULAR AND MOLECULAR BIOLOGY (GCMB)

(Fall 2017-Summer 2018)

Term: Year: 20				Term: Year: 20			
Course No.	Course Title	Pre-Reqs	Crs.	Course No.	Course Title	Pre-Reqs	Crs.
BIOL 11700	Principles of Ecology & Evolution	Placement at or above MA 153	4	BIOL 11900	Principles of Structure & Function	Placement at or above MA 153	4
CHM 11500 (GB4)	General Chemistry	H.S. CHM or CHM 111 (C- or above); MA 154, 227, 229 level	4	CHM 11600	General Chemistry	CHM 115 (C- or above); MA 163, 165, 227, or 229 level	4
ENG W131 (GA1)	Reading, Writing, & Inquiry	Self-Place or ENG W129 (C- or above)	3	ENG W233 (Gen A/B)	Intermed Expos Writing	ENG W131 (C- or above)	3
BIOL 12000	Resource Seminar	Recommended 1 st semester course	1	GB5	Gen Ed Social/Behavior		3
MA 22900 (GA3)	Calc Mnge Soc Biol I	MA 153	3	COM 11400 or HIST H125 (GA2/A&S)	Fundament of Speech or Great Debates		3
Total Semester Credit Hours			15	Total Semester Credit Hours			17

Term: Year: 20				Term: Year: 20			
Course No.	Course Title	Pre-Reqs	Crs.	Course No.	Course Title	Pre-Reqs	Crs.
BIOL 21700	Intermediate Ecology	BIOL 117 & 119 (C- or above)	3	BIOL 21800	Genetics & Molecular	BIOL 117/119 (C- or above); CHM 116 or permission	4
CHM 25500	Organic Chemistry	CHM 116; C: CHM 254	3	CHM 25600	Organic Chemistry	CMH 255; C: CHM 258	3
CHM 25400	Organic Chemistry Lab	C: CHM 255	1	CHM 25800	Organic Chemistry Lab	CHM 254; C: CHM 256	1
BIOL 38100	Cell Biology	BIOL 117; organic chem/permission	3	STAT 24000	Stat Methods Biology	MA 153 (C- or above)	3
FL 11	Foreign Language 1		4	FL 12	Foreign Language 2	FL11/placement	4
Total Semester Credit Hours			14	Total Semester Credit Hours			15

Term: Year: 20				Term: Year: 20			
Course No.	Course Title	Pre-Reqs	Crs.	Course No.	Course Title	Pre-Reqs	Crs.
BIOL 21900	Principles of Funct Biol	BIOL 117/119 (C- or above); CHM 116 or permission	4	PHYS 22100	Gen Physics	PHYS 220	4
PHYS 22000	Gen Physics	MA 153	4	BIOL 50900	Molecular Biology & Applications	BIOL 218, CHM 254 or CHM 533 or permission	3
STAT 34000	Elem Stat Methods II	STAT 240, 301, or 307, or ECON 270 or PSY 201	3	GB7/71	Gen Ed Creat/Interdis (if needed or elective)		3
BIOL 50600	Human Molecular Genetic	BIOL 218; organic chem/ permission	3	GCMB Elective	Genetics Cell/Molecular (Approved elective)	√	3
GB6	Gen Ed Hum/Artistic		3	Gen Ed A/B	Gen Ed A or B course		3
Total Semester Credit Hours			17	Total Semester Credit Hours			16

Term: Year: 20				Term: Year: 20			
Course No.	Course Title	Pre-Reqs	Crs.	Course No.	Course Title	Pre-Reqs	Crs.
CHM 53300	Introductory Biochemistry	CHM 256 or 262	3	BIOL 49100 (GCAP)	Senior Biology Seminar	BIOL 217, 218, or 219; Senior	3
GCMB Elective	Genetics Cell/Molecular (Approved elective)	√	3	@ @ (Elective)	Free elective		3
BIOL 58400	Molecular Biology & Applications Laboratory	BIOL 218	1	@ @ (Elective)	Free elective		3
Gen Ed A/B	Gen Ed A or B course		3	@ @ (Elective)	Free elective		3
@ @ (Elective)	Free elective		3				
Total Semester Credit Hours			13	Total Semester Credit Hours			12

√ = See IPFW Bulletin or myBLUEprint for additional course prerequisites

Summer Courses:

120 credits required for Bachelor of Science degree
2.0 GPA required for Bachelor of Science degree/major