TO: 2021-22 Senate Executive Committee
Ann Marshall, Chair
FROM: Sarah S. LeBlanc, Chair, Curriculum Review Subcommittee
DATE: February 17, 2022
SUBJECT: 5 Year B.S./M.S. Combined Degree Program in Biology

The Curriculum Review Subcommittee supports the proposal from the Department of Biology, for their proposed 5 Year B.S./M.S. Combined Degree Program in Biology. We find that the proposal requires no Senate review.

Thank you for your attention in this matter.

Approving	**Not Approving**	**Absent**
Laurel Campbell		Shannon Johnson
Behin Elahi		
Teresa Hogg		
Sarah LeBlanc		
Jaiyanth Daniel		
Haowen Luo		

Terri Swim, exofficio (non-voting member)

Approved	**Not Approved**	**Absent**
Hadi Alasti	Shannon Johnson	David Cochran
Alan Legg		
Hank Strevel		

Members Kate White and Kerrie Fineran are on sabbatical
Terri Swim, exofficio (non-voting member)

Degree/Certificate/Major/Minor/Concentration Cover Sheet

Date: 10/13/2021

Institution: Purdue

Campus: Fort Wayne

School or College: College of Science

Department: Department of Biology

Location: Choose one 80% or more online: Yes ○ No ◉

County: Allen

Type: Choose one

Program name:

5 Year B.S./M.S. Combined Degree Program in Biology

Graduate/Undergraduate: Choose one

Degree Code: Choose one B.S/M.S

Brief Description:

This dual degree program will allow students to earn a Bachelor of Science and a Masters of Science in Biology in 5 years.

Rationale for new or terminated program:

An advanced degree is required for many occupations in the Biological Sciences. The Department of Biological Sciences at Purdue Fort Wayne has a successful two year M.S. program in place. We propose a combined 5 year degree program for the Biology B.S./M.S. to provide students with an accelerated pathway to an advanced degree while also increasing success in gaining acceptance to competitive professional schools. Because the infrastructure to offer this program exists in the department, costs will be limited to the maintenance of existing programs in the Department. We expect that this program will have positive impacts on workforce development the health sciences, science education, and natural resource management in the region and state.

CIP Code: 26.0101

Name of Person who Submitted Proposal:

Mark Jordan

Contact Information (phone or email): jordanma@pfw.edu (260-481-6315)

Proposal for Graduate Multiple Degree Combined Program (New, Revision, or Expiration)

THE POLICY AND GUIDELINES

Policy – Establishing New Graduate Programs (Purdue Graduate Catalog I.G.5.a.)
LINK: https://catalog.purdue.edu/content.php?catoid=14&navoid=16508#establishing-new-graduate-programs

Format – Appendix I General Proposal Format for Combined Degree Programs
LINK: https://catalog.purdue.edu/content.php?catoid=14&navoid=16546

Please complete each question below. Your proposal should be approved by your department- and college-level committees before being sent to the OAA, specifically the Associate Vice Chancellor for Academic Programs (AVCAP). Of course, the AVCAP is available to answer questions or provide guidance/feedback on your proposal anytime during the process.

1. Proposal Type: New Multiple Degree Program
2. Title: 5 Year B.S./M.S. Combined Degree Program in Biology
3. College: College of Science
4. 2nd College (if more than involved): N/A
5. Department: Department of Biological Sciences
6. 2nd Department(if more than on involved): N/A
7. International University (if applicable): N/A
8. Proposed Date of Initiation – Effective Term: Fall 2022
9. Method(s) of Delivery: In person

PROPOSAL

10. Summary

An advanced degree is required for many occupations in the Biological Sciences. The Department of Biological Sciences at Purdue Fort Wayne has a successful two year M.S. program in place. We propose a combined 5 year degree program B.S./M.S. in Biology to provide students with an accelerated pathway to an advanced degree while also increasing success in gaining acceptance to competitive professional schools. Because the infrastructure to offer this program exists in the department, costs will be limited to the maintenance of existing programs in the Department. We expect that this program will have positive impacts on workforce development in the health sciences, science education, and natural resource management in the region and state.

11. List of Specific Degrees to be Conferred:

B.S. in Biology
M.S. in Biology

12. Provide RATIONALE and NEED for offering the combined degree program. Include a description of the impact and benefits of the proposed program and the relationships of the proposed program to the mission and scope of the campus, to already existing campus programs, and to human resource supply and demand.

The biological sciences offer an array of career opportunities, many of which require an advanced degree. Among graduates with a degree in the biological sciences, 35% are working in healthcare nationwide (U.S. Bureau of Labor Statistics). In Indiana, occupations in the health and animal sciences are in high demand and have high salaries (INDemand Jobs, https://www.indianacareerready.com).

A Bachelor of Science in biology is a natural pathway to these careers because the curriculum significantly overlaps with the prerequisites of professional programs in the health sciences and the degree includes advanced coursework with direct relevance to these fields.

Undergraduates in our B.S. degree program share these career goals, as evidenced by self-identified interest areas including pre-medicine (30.6%), pre-veterinary medicine (12.7%), pre-physician assistant (6.3%), pre-dentistry (4.6%), pre-medical technology (4.6%) and pre-physical therapy (3.5%). These figures underlie students reporting in the Purdue Fort Wayne *First Destination Survey* that the most common post-graduation plan is continuing education [(41.3%), employed full time >32 hours (33.8%), seeking employment (11.3%), employed part time <32 hours (8.8%), other (5.1%); (n = 160, 2017-2020)].

While many of our students have had success with acceptance into highly competitive professional programs, others find that they could use additional coursework to bolster their credentials for a successful application.

A one-year non-thesis M.S. degree would provide a valuable opportunity for many of our B.S. students. Curriculum in Purdue Fort Wayne Department of Biological Sciences is already positioned to offer a 4+1 program and would not require additional resources. We currently offer an M.S. degree with thesis and non-thesis options designed as two-year programs which are successful at attracting highly qualified Purdue Fort Wayne undergraduate students.

Since Fall 2016, 100% of current/former Purdue undergraduates applying to the Biology M.S. degree program were admitted, compared to 78% of applicants from other universities. Of those former/current Purdue undergraduates, 74% accepted their admissions, while 72% from other universities accepted their admissions. The non-thesis option requires 30 credit hours of coursework at the 500 level. These 500 level courses are also available to upper-level undergraduates and can be used for the elective requirements of the Biology B.S. By allowing a portion of the 500 level courses taken as an undergraduate to apply to the M.S. requirements, students would be able to complete both degrees in five years.

The 4+1 B.S./M.S. degree is well aligned with aspirations, objectives, and strategic activities outlined in the Purdue Fort Wayne Strategic Plan 2020-2025. It will *Enhance Quality of Place* by attracting and retaining high-quality students (Objective 1). We will promote this degree path to both incoming and existing students to increase matriculation in both the undergraduate and graduate programs. It will *Champion Student Success* by increasing student retention (Objective 2). Retention in the M.S. program is already high (>90%). We anticipate that retention will be most impacted at the undergraduate level as students see an opportunity to gain an additional credential that is meaningful for their career goals on a shorter timeframe. It will also provide students seeking professional school admission relevant coursework while allowing them to earn an advanced degree. In summary, the proposed degree path will not only increase undergraduate and graduate enrollment by attracting students, but it should also increase undergraduate enrollment retention. This will collectively increase the number of degrees conferred in the Biological Sciences.

13. Objectives:

This new degree pathway will:

- Give students a competitive edge in their career development and/or admission to professional or graduate schools
- Grow the M.S. program
- Increase recruitment and retention to the B.S. program

Students completing the 4+1 B.S./M.S. degree will demonstrate that they have met the learning outcomes for both degrees.

For the B.S. in Biology students will demonstrate:

- a level of competency for understanding core principles of evolution, organismal diversity, ecology, biological structure, biological function, molecular biology, and genetics.
- the ability to locate and critically evaluate scientific information to help develop relevant questions and hypotheses, interpret the results of investigation, and synthesize and apply new and existing knowledge.
- the ability to design studies to test biological hypotheses using laboratory, field, or computational methods that meet professional ethical standards.
- the ability to effectively communicate the results of scientific research verbally and in writing.
- the ability to learn independently, analyze data, interpret results, synthesize information, and to critically evaluate the significance of research results and new knowledge.
- an awareness of the relevance of biological knowledge to human health and welfare in local, national and international communities.

For the non-thesis option of the M.S. in Biology students will:

- demonstrate an ability to acquire new knowledge and skills
- demonstrate the ability to locate and critically evaluate scientific information and apply new and existing knowledge
- effectively communicate scientific research results, both verbally and in writing
- explain the relationships between scientific research, biological principles, and global economic, environmental, and societal issues

14. Proposed Program Structure

a. Admission Requirements and Process

Students will be admitted to the B.S. program following existing standards. In their third year, students will be eligible to apply for the non-thesis M.S. program, provided that they have completed at least 75 credit hours (5 semesters) including two of the three 200 level Biology core courses (BIOL 21700, BIOL 21800, or BIOL 21900). Admission to the accelerated M.S. program will have higher standards than the traditional M.S. program. Successful applicants will have a minimum overall and Biology GPA of 3.3, a grade of B- or

above in Biology core classes completed, and a grade of B- or higher in any graduate courses taken. Admission to the M.S. program will be conditional until the student demonstrates that these standards are met at the conclusion of their senior year.

b. Degree Requirements

The proposed combined B.S/M.S. maintains all of the degree requirements for the B.S. in Biology and the non-thesis M.S. in Biology. The M.S. degree requires 30 credit hours. Following the Purdue University Catalog, students accepted into the 5-year B.S./M.S. degree program will be able to apply up to 12 credits of 500 or higher level graduate courses with a grade B- or above in the M.S. degree plan of study (https://catalog.purdue.edu/content.php?catoid=14&navoid=16909) to reduce the total number of additional credits in the M.S. degree to 18 credit hours, or a total of 138 credit hours for the combined degrees. Students will receive a B.S. degree after completing all undergraduate requirements on schedule (typically in eight semesters), and prior to a M.S. degree which is awarded after completion of their graduate plan of study.

c. Scope, Size of the Program

It is common for majors completing the Biology B.S. to take additional graduate level courses as a non-degree student or to enroll in the M.S. program. We anticipate this new option will be attractive to these students and will increase the number of degrees completed overall. Once the program is established and widely recognized as an option, we expect it will attract up to 10 students per year. This number would represent approximately a 25% increase in the enrollment of the M.S. program.

d. *Administrative Structure*

Undergraduates are eligible to take 500 level courses and apply them to the upper level elective requirements of the B.S. in Biology. As noted earlier, a student in the combined B.S/M.S. would be able to apply up to 12 credit hours of 500 level courses taken as an undergraduate to the 30 credit hours needed for the M.S. degree. A list of 500 level courses and how they map to the four options within the Biology B.S. are shown in Table 1. Two separate plans of study would be maintained for students condtionally accepted into the combined B.S./M.S., one for each degree.

Table 1. List of active graduate level courses offered in the Department of Biology and Chemistry that are eligible as electives in the standard Biology B.S. and three concentrations within the Biology B.S. The electives are divided into A (organismal, population, community, and ecosystem) or B (molecular, cellular, and organ-system). An X indicates an elective course within a concentration, bolded for required courses.

Course No.	Course Title	Biology B.S.	Biology B.S. Ecology and Evolution	Biology B.S. Genetics, Cell and Molecular Biology	Biology B.S. Microbiology and Immunology
BIOL 50100	Field Botany	A	X		
BIOL 50200	Conservation Biology	A	X		

BIOL 50401	Mammalogy	A	X		
BIOL 50500	Biology of Invertebrate Animals	A	X		
BIOL 50600	Human Molecular Genetics	B		X	X
BIOL 50900	Molecular Biol & Applications	B		**X**	X
BIOL 51500	Molecular Genetics	B			
BIOL 51501	Non-Mendelian Genetics	B		X	X
BIOL 51600	Molecular Biol of Cancer	B		X	X
BIOL 51810	Biomedicine	B		X	X
BIOL 52000	Contemporary Parasitology	A	X	X	X
BIOL 52410	Bacterial Diversity and Systematics	A	X	X	X
BIOL 53300	Medical Microbiology	B		X	X
BIOL 53700	Immunobiology	B		X	**X**
BIOL 54000	Biotechnology	B		X	X
BIOL 54110	Invasion Biology	A	X		
BIOL 54210	Biometry	A/B	X	X	
BIOL 54300	Population Ecology	A	X		X
BIOL 54400	Principles of Virology	B		X	X
BIOL 55110	Proteins Structure and Function	B		X	X
BIOL 55600	Physiology I	A	X		
BIOL 55900	Endocrinology	B			
BIOL 56500	Immunobiology Lab	B			**X**
BIOL 56600	Developmental Biology	B		X	
BIOL 56700	Lab in Developmental Biology	B		X	
BIOL 57710	Emerging Infectious Diseases	B		X	X
BIOL 58000	Evolution	A	X		X
BIOL 58200	Ecotoxicology	A	X		
BIOL 58301	Environ & Ag Microbiol	A/B	X		X
BIOL 58302	Lab in Environ & Ag Microbiol	A/B	X		X
BIOL 58400	Molecular Biol/Apps Lab	B		**X**	X
BIOL 58600	Variable titles	A/B	X		
CHM 53300	Introductory Biochemistry			**X**	**X**
CHM 53400	Introductory Biochemistry				
CHM 53500	Biochemistry Laboratory				
CHM 53800	Molecular Biotechnology				
FNR 50500	Molecular Ecology and Evolution	A	X	X	
FNR 52300	Aquaculture	A	X		

e. Example plans of study showing overlap – See attached file

15. Sustainability and Impact on the State and Region

Careers in the biological and biomedical sciences are in high demand in Indiana (INDemand Jobs, https://www.indianacareerready.com). Students earning an M.S. degree in the field have median salaries of $41,774 one year and $92,834 10 years after graduation (Indiana College Value Report 2020, https://www.in.gov/che/college-value-reports/). These figures are approximately 30% higher than students earning a B.S. degree. The report further shows that higher degree attainment is associated with better individual health, volunteerism, and voter participation. Large employers in the

region that could benefit from program graduates include local hospital systems, biomedical companies, school districts, and natural resources agencies.

16. Staffing and Infrastructure - Describe the resources over and above present levels required to initiate the program (space and other physical needs, faculty and staff, fiscal needs, other).

The new program will rely on faculty, staff, and laboratory resources used to deliver existing B.S. and M.S. programs in the department. The sustainability of the proposed, and existing, programs relies on the replacement of recently retired tenured faculty with tenure-track faculty (expertise in critical areas such as immunology, cancer biology, and aquatic biology), additional tenure-track faculty to meet changing student interests, and continued investment in scientific equipment and infrastructure.

Table 1
ACADEMIC DEGREE PROGRAM PROPOSAL SUMMARY
Date: 11/11/21

Institution/Location: Purdue University Fort Wayne
Program: Biological Sciences, 4 + 1 Option

	Year #1 FY 2022	Year # 2 FY2023	Year # 3 FY 2024	Year # 4 FY 2025	Year # 5 FY 2026
Enrollment Projections (Headcount)					
Full-Time	5	10	10	10	10
Part-Time	0	0	0	0	0
Total	5	10	10	10	10
Enrollment Projections (FTE)					
Full-Time	5	10	10	10	10
Part-Time	0	0	0	0	0
Total	5	10	10	10	10
Degree Completions Projection	0	5	10	10	10

CHE Code: 12-XX
Campus Code: XXXX
County: XXXX
Degree Level: XXX
CIP Code: Federal - 000000; State - 000000

BIOLOGY, B.S./M.S. 4+1

PLAN - BIOLOGY (BIOL)

BIOLOGY BS CORE COURSES, BIOL ELECTIVES, & SUPPORTING COURSES (71 credits)

*Note: **2.3** GPA required in BIOL core/2.0 degree GPA for Biology B.S. Admission to the M.S. program requires a 3.3 GPA.

BIOL CORE

_____ 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

BIOL ELECTIVES (16 Credits A/B Lab/Elect required) *Note: 1 credit laboratory courses can contribute to the total number of credits. Such courses are normally combined with a 3 credit lecture course.

_____ **Group A Elective with Laboratory** (select **1** course/lab)

___ 3 ENTM 20600 and 20700 General Applied Entomology and Lab
___ 3-4 Biology with Lab included: BIOL 34500, 43400, 44500, 50100, 50500, or 54300
___ 4 BIOL 50900 and 58400 Molecular Biology & Applications and Lab
___ 4 BIOL 53700 and 56500 Immuno-biology and Lab
___ 4 BIOL 56600 and 56700 Developmental Biology and Lab
___ 4 Biology Course/Lab: BIOL 21500, 31500, 35000 or 43700

_____ **9 Additional (approved) credits A/B Electives** (See Catalog or myBLUEprint)

___ 3 or BIOL or ENTM or FNR _____ (BIOL 215, 315, 335, 345, 350, 381, 434, 437, 445, 501, 502, 505, 506,
___ 3 or BIOL or ENTM or FNR _____ 509, 516, 51810, 520, 52410, 533, 537, 543, 544, 551, 556, 559, 565, 566,
___ 3 or BIOL or ENTM or FNR _____ 567, 577, 57810, 580, 582, 584, 586; or ENTM 206, 207; or FNR 505, 523)

SUPPORTING CHEMISTRY, MATH & PHYSICS

_____ 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

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

_____ 3 Second Semester Writing (C- or higher) (ENGL 23301)
_____ 3 Speaking Requirement (C- or higher) (COM 11400 or HIST H12500)
_____ 8 Credits Language Sequence (credit/placement required for 2 semesters of foreign language or American Sign Language)
_____ FL 11 _____ FL 12 (one course at second semester level required)
Options: (American Sign Language, 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 Catalog 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

PFW Residency Requirements: ____ 32 credits at 200 level or above at PFW ____ 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./M.S. 4+1

PLAN - BIOLOGY (BIOL)

Semester 1				Semester 2			
Course No.	**Course Title**	**Pre-Reqs**	**Crs.**	**Course No.**	**Course Title**	**Pre-Reqs**	**Crs.**
BIOL 11700	Prin of Ecol & Evol	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
ENGL 13100 (GA1)	Reading, Writing, & Inquiry	Self-Place or ENGL 12900 (C- or above)	3	ENGL 23301 (Gen A/B)	Intermed Expos Writing	ENGL 13100 (C- or above)	3
BIOL 12000	Resource Seminar	Recommended first semester course	1	GB5	Gen Ed Social/Behavior		3
MA 22900 (GA3)	Calc Mnge Soc Biol I	MA 153	3	COM 11400 or HIST 12500 (GA2/A&S)	Fundament of Speech or Great Debates		3
	Total Semester Credit Hours		**15**		**Total Semester Credit Hours**		**17**

Semester 3				Semester 4			
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
GB6	Gen Ed Hum/Artistic		3	STAT 24000	Stat Methods Biology	MA 153 (C- or above)	3
FL 11	Foreign Language 1		4	FL 12	Foreign Language 2	FL 11/placement	4
	Total Semester Credit Hours		**14**		**Total Semester Credit Hours**		**15**

Semester 5*				Semester 6			
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	Gen Ed A/B	Gen Ed A or B course		3
STAT 34000	Elem Stat Methods II	STAT 240, 301, 307, or ECON 270 or PSY 201 (C- or above)	3	BIOL A/B – Lab	Approved BIOL A/B Elective with Lab	√	3-4
BIOL A/B – Lab	Approved BIOL A/B Elective with Lab	√	3-4	BIOL A/B Elective 500-Level	Approved BIOL Elective*	√	3-4
BIOL A/B Elective 500-Level	Approved BIOL Elective*	√	3-4				
	Total Semester Credit Hours		**17-18**		**Total Semester Credit Hours**		**13-15**

*Apply to MS program, requires completion of 75 credit hours (including 5th semester) and at least two of the following: BIOL 21700, BIOL 21800, BIOL 21900.

Semester 7				Semester 8			
Course No.	**Course Title**	**Pre-Reqs**	**Crs.**	**Course No.**	**Course Title**	**Pre-Reqs**	**Crs.**
GB7/71	Gen Ed Creat/Interdis (if needed or elective)		3	BIOL 49100 (GCAP)	Senior Biology Seminar	BIOL 217, 218, or 219; Senior	3
Free elective	Free elective		3	Free elective	Free elective		3
Free elective	Free elective		3	Free elective	Free elective		3
Gen Ed A/B	Gen Ed A or B course (if needed or elective)		3-4	BIOL A/B Elective 500-Level	Approved BIOL Elective*	√	3-4
BIOL A/B Elective 500-Level	Approved BIOL Elective*	√	3-4				
	Total Semester Credit Hours		**15-16**		**Total Semester Credit Hours**		**12-13**

*** No more than 12 credits of 500 level courses in Biology, or other acceptable graduate courses, will count toward the M.S. in Biology. See your academic advisor for details.**

BIOLOGY, B.S./M.S. 4+1

PLAN - BIOLOGY (BIOL)

Semester 9				Semester 10ł			
Course No.	**Course Title**	**Pre-Reqs**	**Crs.**	**Course No.**	**Course Title**	**Pre-Reqs**	**Crs.**
Graduate Elective	Approved Graduate Elective	√	3-4	Graduate Elective	Approved Graduate Elective	√	3-4
Graduate Elective	Approved Graduate Elective	√	3-4	Graduate Elective	Approved Graduate Elective	√	3-4
Graduate Elective	Approved Graduate Elective	√	3-4	Graduate Elective	Approved Graduate Elective	√	3-4
BIOL 59500	Seminar Methods Prof		1				
	Total Semester Credit Hours		**10-13**		**Total Semester Credit Hours**		**9-12**

ł Must have completed a minimum of 30 credits of eligible coursework under M.S. degree requirements.

√ = See PFW Catalog or myBLUEprint for additional course prerequisites

PFW Residency Requirements: ____ 32 credits at 200 level or above at PFW ____ 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