Montana University System

PROGRAM REVIEW

Institution: **MSU-Bozeman**

Program Years: **2010-2011**

List of the programs reviewed:

- Genetics Minor
- Immunology and Infectious Diseases (Graduate Program)

Decision(s) concerning the future of the program(s), based on the program review criteria established at the campus:

Please see attached.

Rationale or justification for the decision based on the program review process established at the campus. Include graduation numbers and student majors for each of the last seven (7) years for every program under review.

Please see attached detailed Program Review Overviews.

Montana University System

PROGRAM REVIEW

Institution: **Montana State University - Bozeman**

Program Years: **2010-2011**

List of the programs reviewed:

Genetics Minor

Decision(s) concerning the future of the program(s), based on the program review criteria established at the campus:

The Genetics minor has been placed on a path towards elimination. The Genetics minor will be eliminated unless faculty can increase student interest and participation such that both of the following standards are met:

- At least five students enrolled in the minor at the end of the next academic year.
- At least two students completing the minor in the next two years.

If the minor is eliminated, any students already enrolled in the minor will be allowed to complete the minor.

Rationale or justification for the decision based on the program review process established at the campus. Include graduation numbers and student majors for each of the last seven (7) years for every program under review.

Headcount Graduates with Genetics Minor, Fall 2005-2011

Minor	AY05	AY06	AY07	AY08	AY09	AY10	AY11
Genetics	NA	NA	0	0	0	1	1

Headcount Enrollment in Genetics Minor, Fall 2005-2011

Minor	Fall 2005	Fall 2006	Fall 2007	Fall 2008	Fall 2009	Fall 2010	Fall 2011
Genetics	NA	NA	0	0	0	0	2

Notes:

1 Data from Office of Planning and Analysis, OCHE Data Warehouse Student Table
2 One student was enrolled in the Genetics Minor in spring and summer of 2007
3 Fall 2011 enrollment data are preliminary
4 NA indicates years prior to establishing the minor

The number of students graduating with the Genetics minor indicates that students are not choosing to complete the minor. This strongly suggests that the minor should be eliminated. Concerned faculty have suggested that the cost of offering the minor is minimal, based on the following analysis:

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Genetics Minor

Required Courses	Credits	Enroll.
BIOB 160 or BIOB 260	4	467/160
BIOB 375--General Genetics	3	271
BIOB 480--Conservation Genetics	3	8
BIOB 318 or STAT 216	3	50/1560

Elective Courses	Credits	Req'd	Elec 3
ANSC 322--Principles of Animal Breeding/Genetics	3	Y	
BIOB 435--Plant Systemics	3		Y
BIOB 476R--Gene Construction	3		Y
BCH 444R--Biochemical Methods in Mol Biol	3	Y	
BIOB 420--Evolution	3	Y	Y
CSCI 451--Computational Biology	2		Y
BIOM 291--Special Topics	3		
BIOM 415--Micro Diversity, Ecology & Evolution	4	Y	Y
BIOB 428--Molecular Evolution	3	Y	
BIOM 410--Microbial Genetics	3	Y	Y
AGSC 441--Crop Breeding	3		Y
BIOB 491--Special Topics	4		
BIOB 475--Genome Science	3	Y	Y
BIOB 478--Functional Gene Expression	2	Y	Y

- Three of four required courses are taken by large numbers of students. The number of students taking the Genetics minor has virtually no impact on enrollment in those courses.
- The one course with small enrollment (BIOB 480 Conservation Genetics) is co-convened with BIOL 548 Conservation Genetics. Historically, BIOL 548 has enrollments of 2 to 5 students each fall. By con-convening with BIOB 480 (typically 8 to 10 students), this allows both courses to continue to be offered where neither could be sustained alone.
- With the exception of the Special Topics courses (which vary from term to term), the elective courses are all either a required course (marked as **Req'd** in the table)in another degree program, an allowed elective course in at least three other degree programs (marked as **Elec 3** in the table), or both.

In summary, while the cost to offer the Genetics minor is minimal, the minor as it is currently configured is not being used by students. Possible explanations for this include:

- Students are unaware of the minor.
- Students are not interested in completing the minor.
- Students are unable to complete the minor.

Whatever the reason, students are not making use of this minor and it will be eliminated unless the faculty involved immediately take steps to increase student participation.

Montana University System

PROGRAM REVIEW

Institution: **Montana State University - Bozeman**

Program Years: **2010-2011**

List of the programs reviewed:

Immunology and Infectious Diseases (Graduate Program)

Decision(s) concerning the future of the program(s), based on the program review criteria established at the campus:

The MS and PhD programs in Immunology and Infectious Diseases will continue.

Rationale or justification for the decision based on the program review process established at the campus. Include graduation numbers and student majors for each of the last seven (7) years for every program under review.

Enrolled	2004	2005	2006	2007	2008	2009	2010
M.S.	0	0	1	2	1	2	4
Ph.D.	16	18	12	12	13	9	10

Graduates	2004	2005	2006	2007	2008	2009	2010
M.S.	2	0	2	1	1	0	0
Ph.D.	1	2	3	1	1	5	0

Rationale:

The reviewers commended the program for the quality of the doctoral graduates. However the PhD productivity is low given the extensive research expectations of the faculty. The faculty members in the program were asked to increase the number of PhD candidates in their program before the next review.

The PhD production generally meets our standard of 2 or more per year (rolling average). There is quite a lot of variation in the number of degrees awarded each year, which is typical for small PhD programs. There are sufficient PhD candidates in the pipeline to see continued PhD productivity in the future. Since we are seeing a decrease in the number of enrolled PhD candidates, the program has been advised that they will need to sustain an average productivity of 2 PhD's per year to maintain this program.

The MS productivity is less than three per year, but this is not unexpected. Grant-funded scientific research increasingly focuses on PhD candidates rather than MS candidates. However the MS degree serves a role for

students who are unable to complete a PhD, and for grant awards with limited scope.

Since the PhD programs encompass all of the MS coursework, maintaining the MS provides flexibility for faculty and students without adding costs to an established PhD program.