

**Montana University System**  
PROGRAM REVIEW

Institution: Montana State University - Bozeman

Program Years: 2011-2012

**List of the programs reviewed:**

**College of Letters and Science**

- BA Liberal Studies
- BA American Studies
- MA American Studies
- PhD American Studies

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

All programs will be continued.

**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.**

The Liberal Studies and American Studies programs were developed under the umbrella of University College, housed in the Office of the Provost. Provost Potvin moved the programs out of her office and into the College of Letters and Science. These programs were reviewed to see how they have developed, and to establish a baseline for future growth.

**MAJORS - Fall Enrollment by First Major**

First Major	Degree Sought	2004	2005	2006	2007	2008	2009	2010
American Studies	BA					15	16	11
American Studies	MA							2
American Studies	PhD							9
Liberal Studies	BA	21	56	93	112	152	188	212

**DEGREES Granted in American Studies and Liberal Studies**

Major	Degree Level	AY05	AY06	AY07	AY08	AY09	AY10	AY11
American Studies	BA						5	
American Studies	MA							1
Liberal Studies	BA	4	21	26	27	57	53	44

**Liberal Studies**

The Liberal Studies program has seen significant growth and productivity.

**American Studies**

While the American Studies program is very new, the initial results indicate that both the undergraduate (BA American Studies) and graduate (MA American Studies) programs are attracting students.

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**PROGRAM REVIEW**

Institution: **Montana State University - Bozeman**

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Program Years: **2011-2012**

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**List of the programs reviewed:**

**Department of Chemistry and Biochemistry**

- BS Chemistry (Chemistry, Biochemistry, and Teaching options)
  - MS Chemistry
  - MS Biochemistry
  - PhD Chemistry
  - PhD Biochemistry
  - Minors (Chemistry, Biochemistry, and Chemistry Teaching)
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**Decision(s) concerning the future of the program(s), based on the program review criteria established at the campus:**

An external review of the Department of Chemistry and Biochemistry carried out by the American Association for the Advancement of Science (AAAS) indicates that the department is strong and thriving. None of the degree programs are slated for elimination.

- BS Chemistry (all options) – sustainable at approximately 15 to 18 graduates per year.
  - PhD Chemistry – sustainable at approximately 3.5 graduates per year.
  - PhD Biochemistry – sustainable at approximately 1.7 graduates per year, with recent increases in enrollments indicating a likely increase in graduates in the future.
  - Minors (Chemistry, Biochemistry, Chemistry Teaching)
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**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.**

**GRADUATES Chemistry Degrees Granted by Major, AY 2004-2010**

Department	Major	Option	Degree	AY04	AY05	AY06	AY07	AY08	AY09	AY10
CHEM	Chemistry	Biochemistry	BS	9	9	11	12	11	8	13
CHEM	Chemistry	Professional	BS	5	2	5	5	4	10	5
CHEM	Chemistry	Teaching	BS	0	2	0	1	2	2	1
<b>All Undergraduate Degrees</b>				14	13	16	18	17	20	19

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CHEM	Biochemistry		MS	1	0	0	2	1	1	1
CHEM	Chemistry		MS	3	2	4	3	1	1	1
<b>All Masters Degrees</b>				<b>4</b>	<b>2</b>	<b>4</b>	<b>5</b>	<b>2</b>	<b>2</b>	<b>2</b>

CHEM	Biochemistry		PhD	0	1	3	2	1	0	5
CHEM	Chemistry		PhD	9	1	2	4	3	3	2
<b>All PhD Degrees</b>				<b>9</b>	<b>2</b>	<b>5</b>	<b>6</b>	<b>4</b>	<b>3</b>	<b>7</b>

**MAJORS (Enrollments) by First Declared Major and Option, Fall 2004-2010**

Department	Major	Option	Degree	2004	2005	2006	2007	2008	2009	2010
CHEM	Chemistry	(option unspecified)	BS		2	2				1
CHEM	Chemistry	Biochemistry	BS	40	56	62	56	54	77	86
CHEM	Chemistry	Professional	BS	30	33	35	36	29	39	36
CHEM	Chemistry	Teaching	BS	4	5	4	4	3	6	2
<b>All Undergraduate First Majors</b>				<b>74</b>	<b>96</b>	<b>103</b>	<b>96</b>	<b>86</b>	<b>122</b>	<b>125</b>

CHEM	Biochemistry		MS	3	1	3	3	3		1
CHEM	Chemistry		MS	4	1	1	1		1	
<b>All Masters</b>				<b>7</b>	<b>2</b>	<b>4</b>	<b>4</b>	<b>3</b>	<b>1</b>	<b>1</b>

CHEM	Biochemistry		PHD	17	24	22	28	31	35	35
CHEM	Chemistry		PHD	25	32	25	26	31	34	37
<b>All PhD</b>				<b>42</b>	<b>56</b>	<b>47</b>	<b>54</b>	<b>62</b>	<b>69</b>	<b>72</b>

**MINORS (Enrollments), Fall 2004-2010**

MINOR	2004	2005	2006	2007	2008	2009	2010
Biochemistry	2	8	2	2	2	2	2
Chemistry	3	5	3	3	4	2	
Chemistry Teaching	3	4	2				
<b>All Undergraduate Minors</b>	<b>8</b>	<b>17</b>	<b>7</b>	<b>5</b>	<b>6</b>	<b>4</b>	<b>2</b>

While the Chemistry undergraduate major is quite sustainable with an average of over 15 undergraduate degrees awarded annually, the distribution by option is not uniform. In particular, the Chemistry Teaching option is poorly subscribed and could be a candidate for elimination. However, since only courses that are taken by students in the other options are required for this major, there is no advantage to eliminating the Chemistry Teaching Option, and the state of Montana needs high school chemistry teachers. Every undergraduate major is required to have an undergraduate research experience. Because of the large number of other majors for which chemistry is required, the department taught over 17,000 undergraduate student credit hours in 2010-2011.

The Department of Chemistry and Biochemistry has an extremely active graduate program at the doctoral level, graduating an average of 5 PhDs each year in Chemistry (3.5 avg) and Biochemistry (1.7 avg). With enrollments in the two programs now approximately equal and growing, future graduation rates are likely to

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be comparable in chemistry and biochemistry and are likely to increase. The department is ranked in the top 50 chemistry departments nationwide for external research expenditures. Expenditures from grants and contracts won by faculty in the department have grown from \$4 million annually in 2004 to over \$10 million in 2011.

The MS degrees in Chemistry and Biochemistry are not a primary focus of the department, but are available to students who choose to pursue the MS en route to a PhD. Since the doctoral students take all of the courses required by the masters candidates, there is no advantage to eliminating the masters degrees.

Chemistry and Biochemistry minors are routinely subscribed by a small number of students, but the Chemistry Teaching minor has not been used since 2007. Again, an analysis of the curricular requirements of these minors indicates that the CHMY courses required for the minors are all required for the majors as well. We will be monitoring the Chemistry Teaching minor to see if it should be removed because of disuse, but there is no cost to keeping it available for the time being. The department is working with the department of education to revitalize this minor because of the need for high school chemistry teachers in Montana.

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Institution: **Montana State University - Bozeman**

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Program Years: **2011-2012**

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**List of the programs reviewed:**

**College of Engineering Graduate Programs**

- **Master of Construction Engineering Management**
- **MS Chemical Engineering**
- **MS Civil Engineering**
- **MS Computer Science**
- **MS Electrical Engineering**
- **MS Environmental Engineering**
- **MS Industrial and Management Engineering**
- **MS Mechanical Engineering**
- **PhD Computer Science**
- **PhD Engineering** (Options in Applied Mechanics, Chemical Engineering, Civil Engineering, Electrical and Computer Engineering, Environmental Engineering, Industrial Engineering, and Mechanical Engineering)

The college has just started some new programs:

- The **Professional Master of Science and Engineering Management (PMSEM)** is a new predominately online Master's degree. That degree was not included in this review because the first class of students had not yet enrolled at the time of the review. We now know that 11 students have enrolled in the first class, with significant interest expressed by additional students.
- **Master of Engineering** programs in Bioengineering, Chemical Engineering, Electrical Engineering and Mechanical Engineering were approved in May 2010 and have only recently begun admitting students. Because of the lack of data, these programs were not included in this review.

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

- **Master of Construction Engineering Management** – Students are no longer being admitted to this program and it will be phased out (subject to approval by the Regents, which will be requested in the near future.) The type of student who might participate in this program would also be a good fit for the new PMSEM program.
- **MS Environmental Engineering** – this program struggles to sustain enrollments and productivity. The faculty instituted a seamless master's degree (five year BS/MS) in an attempt to address this problem. It will be a few years before we have the data to know if this approach is successful. We continue to monitor enrollments in this program.
- **All other programs will be continued.**

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**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.**

**MAJORS in Engineering Graduate Programs**

DEGREE	MAJOR	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Doctor of Philosophy	Computer Science	9	10	12	10	8	11	18	13	12	21
Doctor of Philosophy	Engineering	29	33	33	35	36	33	42	36	35	47
<b>All PhD Candidates in College of Engineering</b>		<b>38</b>	<b>43</b>	<b>45</b>	<b>45</b>	<b>44</b>	<b>44</b>	<b>60</b>	<b>49</b>	<b>47</b>	<b>68</b>

Master	Construction Eng Mgmt	2	1	4	2	4	6	7	7	4	2
Master of Science	Chemical Engineering	16	9	6	4	5	8	8	9	3	8
Master of Science	Civil Engineering	23	22	17	19	20	21	23	30	31	26
Master of Science	Computer Science	33	33	23	21	26	18	24	24	24	25
Master of Science	Electrical Engineering	27	24	24	27	36	39	34	29	21	18
Master of Science	Environmental Engineering	5	4	5	6	4	2	4	5	6	5
Master of Science	Industrial & Mngt Engr	22	22	15	7	10	10	9	12	6	10
Master of Science	Mechanical Engineering	24	16	17	16	18	19	22	23	20	24
<b>All Masters Candidates in College of Engineering</b>		<b>152</b>	<b>131</b>	<b>111</b>	<b>102</b>	<b>123</b>	<b>123</b>	<b>131</b>	<b>139</b>	<b>115</b>	<b>118</b>

**DEGREES Awarded by Engineering Graduate Programs**

DEGREE	MAJOR	AY04	AY05	AY06	AY07	AY08	AY09	AY10	AY11	AY12
Doctor of Philosophy	Computer Science	0	2	1	0	2	0	3	2	0
Doctor of Philosophy	Engineering	1	2	6	6	9	3	8	6	3
<b>All PhD Degrees in College of Engineering</b>		<b>1</b>	<b>4</b>	<b>7</b>	<b>6</b>	<b>11</b>	<b>3</b>	<b>11</b>	<b>8</b>	<b>3</b>

Master	Construction Eng Mgmt	2	0	4	1	0	4	5	5	2
Master of Science	Chemical Engineering	3	3	2	2	2	4	2	4	4
Master of Science	Civil Engineering	12	11	8	9	7	9	8	9	18
Master of Science	Computer Science	10	9	5	4	10	5	8	10	7
Master of Science	Electrical Engineering	10	8	12	7	8	17	17	9	14
Master of Science	Environmental Eng	4	3	1	1	4	2	2	0	6
Master of Science	Industrial & Mngt Engr	9	13	10	5	1	6	4	6	2
Master of Science	Mechanical Engineering	6	7	8	6	5	7	10	7	9
<b>All Masters Degrees in College of Engineering</b>		<b>56</b>	<b>54</b>	<b>50</b>	<b>35</b>	<b>37</b>	<b>54</b>	<b>56</b>	<b>50</b>	<b>62</b>

**PhD Programs**

The PhD Programs (PhD Engineering, PhD Computer Science) are sustainable and productive.

Some faculty members are asking if it is time to break out the various options in the PhD Engineering

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(Applied Mechanics, Chemical Engineering, Civil Engineering, Electrical and Computer Engineering, Environmental Engineering, Industrial Engineering, and Mechanical Engineering) into individual degree programs. Based upon degree productivity, the Chemical Engineering, and Electrical and Computer Engineering options are the most likely candidates, but only Chemical Engineering has achieved a production rate that averages over 2 PhD's per year. However the large MS program in Electrical Engineering could be a solid foundation for a shift to a larger PhD program in that field.

No decision to break out PhD programs by individual disciplines has been made at this time.

#### MS Programs

Most of the Master's degree programs in Engineering are producing at least 5 graduates per year, with the following exceptions:

- **Master of Construction Engineering Management**
- **MS Chemical Engineering**
- **MS Environmental Engineering**

The Master of Construction Engineering Management is currently closed to new applicants, and is being phased out. Students interested in this program are being encouraged to consider the new Professional Master of Science and Engineering Management (PMSEM) program instead. In the near future we will ask the Regents for permission to eliminate this program.

The faculty in Chemical Engineering has purposely transitioned their graduate program to focus primarily on the PhD program, which has become the most productive PhD option in the college. Since all of the courses required by the MS candidates are also taken by the PhD candidates, there is no gain in eliminating the MS program in Chemical Engineering.

The MS Environmental Engineering program struggles to sustain adequate enrollments and degree productivity. However there is a bright spot in that the number of degrees awarded increased significantly between AY11 and AY12, but the enrollment continues to be very small. The faculty has addressed this by instituting a new coordinated undergraduate/graduate curriculum to stimulate enrollments that allows students to complete their BS and MS degrees in five years. This program was instituted two years ago and, since the students are not required to identify themselves as participants in the program until their senior year, we simply do not yet have the data to see the impact on enrollment. This issue is being monitored by the faculty. Until this issue is resolved, enrollments in the program will be reported annually to Academic Affairs.



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Institution: Montana State University - Bozeman

Program Years: 2011-2012

**List of the programs reviewed:**

**Land Resources and Environmental Sciences (LRES)**

- BS Environmental Sciences
- BS Geospatial and Environmental Analysis
- BS Land Rehabilitation
- BS Land Resource Sciences – phasing out
- BS Sustainable Food and Bioenergy (Agroecology Option)
- MS Land Rehabilitation
- MS Land Resources Environmental Science
- MS Entomology
- PhD Ecology and Environmental Sciences
- Minors (Entomology, Soil Science, Water Resources)

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

The programs in LRES will be continued, however, based on the recommendations of a program review conducted by the USDA, the department faculty is working on a curriculum update that will combine the Environmental Sciences, Geospatial & Environmental Analysis, and Land Rehabilitation programs into a single undergraduate major with several options rather than three separate degrees.

**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.**

**MAJORS (Enrollments) by First Declared Major, Fall 2004-2010**

Dept.	Major	Degree	2004	2005	2006	2007	2008	2009	2010
LRES	Environmental Sciences	BS	65	55	34	34	50	50	66
LRES	Geospatial & Environ Analysis	BS							4
LRES	Land Rehabilitation	BS	25	26	21	25	20	27	26
LRES	Land Resource Sciences – phasing out	BS	29	30	30	19	18	16	10
LRES	Sustainable Food and Bioenergy	BS						3	8
<b>All Undergraduate First Majors</b>			<b>119</b>	<b>111</b>	<b>85</b>	<b>78</b>	<b>88</b>	<b>96</b>	<b>114</b>

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LRES	Land Rehabilitation	MS	16	9	14	9	9	1	
LRES	Land Resources Environmental Science	MS	21	21	24	16	13	16	20
ENTO	Entomology	MS	13	8	6	4	3	3	5
<b>All Masters</b>			<b>50</b>	<b>38</b>	<b>44</b>	<b>29</b>	<b>25</b>	<b>20</b>	<b>25</b>

LRES	Ecology/Environmental Sciences	PHD				16	21	28	28
LRES	Land Resources Environmental Sci. (Phasing Out)	PHD	14	19	16	4	3	3	1
<b>All PhD</b>			<b>14</b>	<b>19</b>	<b>16</b>	<b>20</b>	<b>24</b>	<b>31</b>	<b>29</b>

**MINORS (Enrollments), Fall 2004-2010**

MINOR	Student Level	2004	2005	2006	2007	2008	2009	2010	2011	2012
Entomology	UG	2	1	1	1				1	2
Soil Science	UG	1	1	5	3	4				2
Water Resources	UG			1				3	3	2

**LRES Degrees Granted by Major, AY 2003-2010**

Department	Major	Degree	AY04	AY05	AY06	AY07	AY08	AY09	AY10
LRES	Environmental Sciences	BS	5	17	13	11	4	7	5
LRES	Land Rehabilitation	BS	6	6	3	7	5	7	2
LRES	Land Resource Sciences - phasing out	BS	4	10	10	7	6	3	6
<b>All Undergraduate Degrees</b>			<b>16</b>	<b>33</b>	<b>26</b>	<b>25</b>	<b>15</b>	<b>17</b>	<b>13</b>

LRES	Land Rehabilitation	MS	3	2	4	4	2	6	0
LRES	Land Resources Environmntl Sci	MS	8	10	6	6	3	5	3
ENTO	Entomology	MS	3	4	2	5	1	2	1
<b>All Masters Degrees</b>			<b>15</b>	<b>16</b>	<b>12</b>	<b>15</b>	<b>6</b>	<b>13</b>	<b>4</b>

LRES	Ecology/Environmental Sciences	PhD	0	0	0	0	2	3	3
LRES	Land Resources Env Sci - Phasing Out	PhD	6	3	3	0	1	0	1
<b>All PhD Degrees</b>			<b>6</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>3</b>	<b>3</b>	<b>4</b>

**Bachelor Degrees**

There are currently two established BS programs in LRES (Environmental Sciences, Land Rehabilitation) with a third BS, Land Resource Sciences, in process of phasing out. Components of the Land Resource Sciences program have been incorporated into two new undergraduate programs: the BS Geospatial & Environmental Analysis program, and the BS Sustainable Food and Bioenergy. The latter degree is interdisciplinary with options in three departments. The LRES department offers the Agroecology option.

All programs (except Land Resource Sciences) are growing, with overall undergraduate enrollment in LRES up nearly 25% in AY2012 (142 undergraduate majors in Fall 2012). The Land Resources Sciences program will be shut down when the last students complete the program (two remain in the program

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at present).

#### Minors

There are three minors offered by the LRES department and none is well-subscribed. Looking just at 2004-2010 data, it appeared that students were opting not to take these minors. However, student interest has returned in 2011 and 2012. The Water Resources minor requires students to identify 7 courses (21 credits) from a list of 36 options. This minor has little impact on resource requirements in any department. Specific courses with limited enrollment are required for the Entomology and Soil Science minors, but steps have been taken to control costs associated with these courses:

- The Entomology minor requires BIOO 465: Insect Identification. This course is also required by the Entomology MS, but still has limited enrollment. Beginning in Spring 2011, the course will now be offered alternate years to increase enrollment.
- The Soil Science minor requires BIOM 452: Soil and Environmental Microbiology. Beginning in Spring 2011, the course will now be offered alternate years to increase enrollment.

#### Masters Degrees

The department offers three MS degrees, which will be discussed separately.

- **MS in Land Resources and Environmental Science** – according to the data shown above, this program is sustainable and productive. What the data does not show is a significant recent increase in majors (33 in Fall 2012). This is largely the result of allowing students to participate in this program online as of Fall 2012.
- **MS in Land Rehabilitation** – the data indicates that this program has dwindled beyond the point of sustainability. This was largely the result of faculty changes within the department. Because of the centrality of land rehabilitation to the State, the LRES department has specifically hired a faculty member with research interests in this area with a plan to rebuild this program. As of Fall 2012 there are 8 MS candidates in this program, and that number is expected to increase in the future.
- **MS in Entomology** – The entomology program has always been a specialized MS-only program sustained by entomology faculty (predominantly researchers) from three departments (LRES, Plant Sciences and Plant Pathology, and Animal and Range Sciences.) The number of students pursuing the MS in Entomology decreased in 2008 and 09, but has grown again to 7 in Fall 2012. To control costs eight of the twelve courses listed for the major are taught only in alternate years (exceptions are master's thesis, seminar, statistics, and a 200-level entomology course available as an elective.)

#### Doctoral Degree

The LRES department currently offers one PhD in Ecology and Environmental Sciences. The former PhD in Land Resources and Environmental Sciences has been phased out. The PhD program is very sustainable with an average of more than three PhD's awarded annually.

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Institution: Montana State University - Bozeman

Program Years: 2011-2012

**List of the programs reviewed:**

**Plant Sciences and Plant Pathology Department**

- BS Environmental Horticulture
- BS Plant Science
- MS Plant Pathology
- MS Plant Science
- PhD Plant Science
- Minor in Environmental Horticulture

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

All programs will be continued.

Note: The BS Horticulture was eliminated several years ago, but is included in the data tables because the program is still phasing out. The Minor in Horticulture was eliminated several years ago and has been phased out. A minor in Environmental Horticulture was added in 2010, but sufficient data are not yet available to review this 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.**

**MAJORS - PSPP Enrollments by First Declared Major, Fall 2004-2010**

Dept	Major	Degree	2004	2005	2006	2007	2008	2009	2010
PSPP	Environmental Horticulture	BS	86	73	63	66	61	82	76
PSPP	Horticulture - phasing out	BS	37	36	34	27	31	12	6
PSPP	Plant Science	BS	12	6	11	15	13	11	17
<b>All Undergraduate First Majors</b>			<b>135</b>	<b>115</b>	<b>108</b>	<b>108</b>	<b>105</b>	<b>105</b>	<b>99</b>

PSPP	Plant Pathology	MS	1	1	1	3	4	3	1
PSPP	Plant Science	MS	10	14	11	8	8	7	10
<b>All Masters</b>			<b>11</b>	<b>15</b>	<b>12</b>	<b>11</b>	<b>12</b>	<b>10</b>	<b>11</b>

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PSPP	Plant Science	PHD	8	8	7	9	6	5	6
<b>All PhD</b>			<b>8</b>	<b>8</b>	<b>7</b>	<b>9</b>	<b>6</b>	<b>5</b>	<b>6</b>

**DEGREES – Plant Sciences Degrees Granted by Major, AY 2004-2010**

Dept	Major	Degree	AY04	AY05	AY06	AY07	AY08	AY09	AY10
PSPP	Environmental Horticulture	BS	18	22	16	15	13	12	24
PSPP	Horticulture - phasing out	BS	14	7	9	6	10	6	0
PSPP	Plant Science	BS	6	4	0	2	4	3	2
<b>All Undergraduate Degrees</b>			<b>38</b>	<b>33</b>	<b>25</b>	<b>23</b>	<b>27</b>	<b>21</b>	<b>26</b>

PSPP	Plant Pathology	MS	1	1	1	0	2	1	1
PSPP	Plant Science	MS	5	4	1	9	2	2	3
<b>All Masters Degrees</b>			<b>6</b>	<b>5</b>	<b>2</b>	<b>9</b>	<b>4</b>	<b>3</b>	<b>4</b>

PSPP	Plant Science	PhD	1	1	1	2	4	0	2
<b>All PhD Degrees</b>			<b>1</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>4</b>	<b>0</b>	<b>2</b>

**BS Degrees**

The Plant Science and Plant Pathology (PSPP) Department offers two Bachelor of Science degrees: BS Environmental Horticulture, and BS Plant Science (the BS Horticulture program is no longer available to new students and is being phased out).

- The **BS Environmental Horticulture** degree is both popular with students and productive, averaging 17 graduates per year, and both enrollments and graduates are up recently.
- The **BS Plant Science** degree has far fewer majors and graduates. The degree (and especially the Crop Science Option) is maintained because of its centrality to the mission of the department and the university. The issues associated with this degree were specifically addressed by the reviewers who investigated the course requirements and enrollments. The department has been careful to ensure that the courses required for the BS Plant Sciences program are also taken by other, more populous majors (e.g., Agricultural Business, Natural Resources and Rangeland Ecology, Sustainable Crop Production Option); the department monitors course enrollments to ensure sustainability. Because of this careful management, the BS Plant Sciences degree can be sustained.

**MS Degrees**

The PSPP Department offers two Master of Science degrees: MS Plant Pathology and MS Plant Science. Combined, the department has, on average, awarded approximately five (4.7) MS degrees each year. When viewed separately, the productivity of the Plant Pathology degree is marginal. But because there is significant curriculum overlap between the MS degrees and the PhD degree, the students in the three graduate programs are sufficient to sustain these programs.

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#### PhD Degrees

The PSPP Department offers one PhD degree in Plant Science. While the productivity varies from year to year, the average over the past seven years is 1.6 PhD's awarded per year, but in the past four years the average has been 2.0 per year.

Additionally, the program reviewers offered ideas for building the graduate program, and the college responded to the review by increasing support for GTAs and GRAs. As a result, graduate enrollment has increased to 24 in Fall 2012 and we expect to see this program continue to grow.

#### Minor

The PSPP Department currently offers one minor in Environmental Horticulture. This minor was created in 2010. Because it was added so recently, the sustainability of the minor was not assessed.