

Montana University System
PROGRAM REVIEW

Institution: **University of Montana**

Program Years: **2014-2015**

List of the programs reviewed:

University of Montana-Missoula

- Biological Sciences
- Computer Science
- Counselor Education
- Economics
- Women's, Gender, and Sexuality Studies

Missoula College

- Culinary Arts
- Pharmacy Technology
- Radiologic Technology
- Energy Technology

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

See the attached detailed individual Program Review summaries.

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.

See the attached individual Program Review summaries.

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PROGRAM REVIEW

Institution: **University of Montana**

Program Years: **2014-15**

List of the programs reviewed:

- Biology B.A. with options including:
 - Cellular and Molecular Biology
 - Ecology and Organismal Biology
 - Field Ecology
 - Genetics and Evolution
 - Human Biological Sciences
 - Natural History
 - Teacher Preparation in Biology
 - Teacher Preparation in General Science
- Biochemistry B.S. with option including:
 - Health Professions
- Biology minor
- Microbiology minor
- Microbiology B.S.
- Medical Technology B.S.
- Biochemistry, MS
- Cellular, Molecular, and Microbial Biology M.S. and PhD (formerly Integrative Microbiology & Biochemistry)
- Organismal Biology and Ecology, M.S. and PhD
- Systems Ecology, M.S. and PhD

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

Retain all degrees and options.

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 Division of Biological Sciences submitted a self-study in fall 2014 and an external review team composed of Dagmar Ringe (Brandeis University) and Evan DeLucia (University of Illinois) submitted their review of the division in May 2015.

The Division serves a large number of student majors and provides foundation courses for other popular programs such as pharmacy and wildlife biology. Of student demand, the reviewers said, “the discipline is vigorous, expanding and increasing.” Overall, the reviewers found the Division to be thriving. “The biological sciences at UM are strong, and encompass a wide diversity of sub-disciplines, ranging from the molecular to

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the organismal and environmental.” The large number of student majors and the diverse research focuses of the faculty can be a strong point but also creates issues related to scarcity of resources. The reviewers encouraged DBS to “develop and support an integrated, unified vision for the future.” Given the strength of the faculty and quality of both undergraduate and graduate students, the Division is in an excellent position to move forward.

The Division of Biological Sciences generated 8,605 student credit hours in fall 2014. The number of student majors and graduates is given below. The Integrative Microbiology and Biochemistry program has changed its name to Cellular, Molecular, and Microbial Biology. Also, please note that Zoological Sciences and Botanical Sciences are old options that are no longer offered.

Division of Biological Sciences		Fall						
First & Second Majors	Degree Level	2007	2008	2009	2010	2011	2012	2013
Biological Sciences	Undergraduate	693	714	772	829	866	850	968
	Graduate	72	80	64	77	61	68	75
Total		765	794	836	906	927	918	1,043

Division of Biological Sciences			FY07	FY08	FY09	FY10	FY11	FY12	FY13
Degree	Major	Option							
Bachelor of Arts	Biology		1	4	2	5	2	6	7
Bachelor of Arts	Biology	Biological Education	4	3	5	3	4	2	1
Bachelor of Arts	Biology	Cellular & Molecular Biology	3	6	5	8	4	3	12
Bachelor of Arts	Biology	Ecology/Field Ecology	7	10	10	3	1		5
Bachelor of Arts	Biology	Human Biological Sciences	35	35	31	40	43	42	37
Bachelor of Arts	Biology	Botanical Sciences	4	3	5	2	2	2	
Bachelor of Arts	Biology	Natural History	4		3	1	3	3	3
Bachelor of Arts	Biology	Zoological Sciences	6	12	3	3	2	1	
Bachelor of Arts	Biology	Ecology and Organismal Biology			13	27	20	23	32
Bachelor of Science	Biochemistry							3	5
Bachelor of Science	Biochemistry	Health Professions						1	3
Bachelor of Science	Microbiology		18	12	8	9	9	4	7
Bachelor of Science	Medical Technology		6	12	10	8	10	8	11
Minor Programs									
minor	Biology		1	7	9	13	3	5	8
minor	Microbiology			1	2	1			
Master's Programs									
Master of Science	Biochemistry		1	1	1	4			1
Master of Science	Integrative Micro & Biochem		2	1	3		2	1	1
Master of Science	Organismal Biology & Ecology		5	1	2	3	2	1	2
Master of Science	Systems Ecology							1	
PhD Programs									
PhD.	Integrative Micro & Biochem			2	4	2	3	2	4
PhD.	Integrative Micro & Biochem	Cellular & Molecular Biology					2		
PhD.	Integrative Micro & Biochem	Biochemistry							1
PhD.	Integrative Micro & Biochem	Microbial Ecology				1			
PhD.	Organismal Biology & Ecology		5	7	5	2	4	4	4

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Institution: **University of Montana**

Program Years: **2014-15**

List of the programs reviewed:

- Computer Science, B.A.
 - Computer Science, M.A.
 - Computer Science, minor
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Decision(s) concerning the future of the program(s), based on the program review criteria established at the campus:

Retain all degrees and options.

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 Computer Science (CS) department completed a self-study in Fall 2013 and applied for reaccreditation of its undergraduate program through ABET (Accreditation Board for Engineering and Technology) at this time. The thorough ABET report was over 600 pages in length. ABET reviewers found the Department of Computer Science to be strong across the required standards, but asked for improvement in the Program Educational Objectives and Student Outcomes. The program provided an appropriate response to this feedback and has been able to address the concerns that were raised.

The University of Montana's Graduate Council reviewed the program's self-study for the graduate program, and the Council determined that the program was operating effectively. The department's faculty members have published 60 peer-reviewed articles in the last five years, and have secured \$2.5 million dollars in external funding during this time.

The Computer Science program is well positioned to contribute to UM's Big Data initiative, and there are other opportunities for interdisciplinary connections. Many of the students in CS courses are non-majors, which allows course discussions and applications to influence other disciplines as well.

The number of undergraduate and graduate students has risen over the last five years. Computer Science generated 2,181 student credit hours in fall 2014. The number of student majors and graduates is given below. (Note: the Computer Science BA no longer offers options.)

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Department of Computer Science		Fall									
First and Second Majors	Degree Level	2007	2008	2009	2010	2011	2012	2013			
Computer Science	Undergraduate	93	105	116	123	135	139	164			
	Graduate	21	19	20	25	22	21	23			
	Total	114	124	136	148	157	160	187			
Department of Computer Science											
Degree	Major	Option	FY07	FY08	FY09	FY10	FY11	FY12	FY13		
Bachelor of Arts	Computer Science		1	2	4	4	6	6	10		
Bachelor of Arts	Computer Science	Business Systems			1						
Bachelor of Arts	Computer Science	Scientific Applications			1						
Bachelor of Arts	Computer Science	Software Systems	6	5	3	2		1			
Bachelor of Arts	Comp Sci-Mathematical Sci		1		3	1	2		2		
minor	Computer Science		1			1	3	6	2		
Master of Arts	Computer Science		7	5	7	5	7	2	4		

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PROGRAM REVIEW

Institution: University of Montana

Program Years: 2014-15

List of the programs reviewed:

- Counselor Education, M.A. with options in:
 - School Counseling
 - Mental Health Counseling
 - Global Youth Development M.A. (formerly Intercultural Youth & Family Development)
 - Counselor Education and Supervision Ed.D.
 - Counselor Education Ed.S.
-

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

Retain all degrees and options.

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 Department of Counselor Education created a self-study for CACREP, which accredits the MA in Counselor Education. They also submitted a self-study report with a overall view of the entire department. CACREP has fully accredited the MA degree for eight years, which is the highest review ranking possible with CACREP. The Graduate Council reviewed all documents and found the program to be “exemplary”.

The program reports that their graduates have outstanding career prospects, with essentially all graduates finding employment. Many are employed across the state as licensed school counselors, mental health counselors, and hold academic positions across the nation. The Global Youth Development MA has received national recognition from the Peace Corps and Counselor Education students are publishing and presenting at prestigious conferences and winning awards.

CACREP commended the program for “ingenuity in providing students with high quality experience in the clinical phase of their program, especially with the Practicum.” The CACREP report also states that “Site Supervisors and employers noted that Counseling students from the U of MT programs are some of the best prepared students that they have had contact with. They stated that U of MT students arrive in their clinical placements ready to put their knowledge into action.”

The number of majors and graduates is given below.

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Department of Counselor Education		Fall									
First and Second Majors	Degree Level	2006	2007	2008	2009	2010	2011	2012			
Counselor Education	Graduate	48	50	40	40	40	42	44			
	Total	48	50	40	40	40	42	44			
Department of Counselor Education											
Degree	Major	Option			FY06	FY07	FY08	FY09	FY10	FY11	FY12
Master of Arts	Counselor Education				4		1	2	2	1	
Master of Arts	Counselor Education	School Counseling			5	10	12	6	2	5	7
Master of Arts	Counselor Education	Mental Health Counseling			9	8	9	4	7	6	10
Master of Arts	Intercultural Youth & Family Development				2	2	10	5	8	6	8
EdD	Counselor Ed & Supv				1	1	1	2			2
EdS	Counselor Education				1	1	3	3			1

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PROGRAM REVIEW

Institution: University of Montana

Program Years: 2014-15

List of the programs reviewed:

- Economics, B.A.
 - Economics, M.A.
-

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

Retain all degrees and options.

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 Department of Economics submitted a self-study in fall 2014 and Dr. Bruce Blonigen of the University of Oregon completed an external review of the department in February 2015.

Dr. Blonigen found that the undergraduate curriculum was rigorous and that faculty members are uniquely willing and available to meet with and advise students, which creates an open and engaged departmental atmosphere. "The faculty members show great commitment to their research, teaching, and desire to make it an excellent department. This is something very tangible when you talk to the students, as well as the faculty."

Enrollment is steady, but in order to attract more student majors, Dr. Blonigen suggested marketing the strong potential for economics graduates to pursue successful careers in private industry. Undergraduates are required to write a thesis, which the reviewer found to be impressive but also potentially discouraging when attempting to attract new majors that could choose another major (Business School) without such a requirement.

The number of undergraduate and graduate students has risen over the last five years. Economics generated 2,797 student credit hours in fall 2014. The number of student majors and graduates is given below.

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Department of Economics		Fall						
First and Second Majors	Degree Level	2007	2008	2009	2010	2011	2012	2013
Economics	Undergraduate	52	69	69	75	66	77	69
	Graduate	11	13	14	15	14	12	12
	Total	63	82	83	90	80	89	81
Department of								
Degree	Major	FY07	FY08	FY09	FY10	FY11	FY12	FY13
Bachelor of Arts	Economics	11	7	18	22	21	12	18
Master of Arts	Economics	1	3	4	4	2	4	1

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PROGRAM REVIEW

Institution: **University of Montana**

Program Years: **2014-15**

List of the programs reviewed:

- Women's Gender and Sexuality Studies, minor
 - Women's, Gender and Sexuality Studies, graduate certificate
-

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

Retain all degrees and options.

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 Women's, Gender and Sexuality Studies (WGSS) program completed a self-study in fall 2014 and Dr. Catherine Palczewski of the University of Northern Iowa submitted an external review in December 2014. Overall, Dr. Palczewski found the program to be strong. "I am impressed with the rigorous curriculum, extensive co-curricular programming, intense commitment to students (both in the program and at the University), noteworthy scholarship, and service to the University."

The WGSS program faculty have won multiple awards for both research and excellence in teaching. As an interdisciplinary program, WGSS relies on the dedication of faculty with other academic homes and obligations to other departments. Although this can create challenges, the reviewer also noted that WGSS is a great example of how interdisciplinary programs can encourage collaboration across departmental lines.

The program's campus presence has increased over the last few years due to the leading role it played in designing and implementing the mandatory online sexual assault prevention tutorial for all UM students. As Dr. Palczewski noted, "Those involved with WGS are scholars capable of translating their knowledge into action to create solutions to campus problems and to provide resources for the larger community."

The program has at times suffered from a lack of visibility. In response, they recently created a WGSS B.A. degree that will provide a more structured home for the program and allow them to serve more students. This was one of the suggestions provided by the external reviewer that has already been implemented.

The number of graduates is given below. The graduate certificate was created in 2010.

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Department of Women's Gender, and Sexuality Studies								
Degree	Major	FY07	FY08	FY09	FY10	FY11	FY12	FY13
Graduate Certificate	Women's and Gender Studies						2	1
minor	Women's and Gender Studies	14	4	9	4	6	9	14

Montana University System
PROGRAM REVIEW

Institution: Missoula College-UM

Program Years: 2014-15

List of the programs reviewed:

- Culinary Arts, Certificate of Applied Science
 - Food Service Management, AAS
-

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

Retain all degrees and options.

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.

In Fall 2013, evaluators representing the American Culinary Federation conducted a site visit to review the AAS Degree in Food Service Management and the Certificate in Culinary Arts program. The follow-up program review identified many strengths of the program, as well as some areas for growth and improvement.

The Culinary Arts program is proud to report 100 percent job placement for its graduates. The program has an outstanding reputation and connections with businesses in the community. Students and chefs in the program have won many awards and frequently place highly in American Culinary Federation competitions. The catering aspect of the program does approximately \$40,000 in business a semester and provides excellent learning opportunities for students.

With the upcoming transition to the new Missoula College building, the Culinary Arts program expects to increase enrollments by 150-200%, and is considering offering courses year-round. The new campus will have three kitchens in which students can work.

One suggested area for improvement is to develop clearer learning outcomes and assessment rubrics. The program is also trying to improve internship experiences and is moving toward more internal experiences (e.g., managing the storeroom, doing inventory and purchasing, and teacher aids). Collaboration with UM's Internship Services has been very helpful in this regard.

The number of student majors and graduates is given below.

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Culinary Arts								
		Fall						
First and Second Majors	Degree Level	2008	2009	2010	2011	2012	2013	2014
Culinary Arts	Certificate	26	53	56	48	43	13	2
Food Service Management	Associate	14	11	21	19	20	62	60
Culinary Arts								
Degree	Major	FY08	FY09	FY10	FY11	FY12	FY13	FY14
Certificate	Culinary Arts	5	11	8	8	12	9	15
Associate of Applied Science	Food Service Management	7	8	8	7	10	10	16

Montana University System
PROGRAM REVIEW

Institution: Missoula College-UM

Program Years: 2014-15

List of the programs reviewed:

Pharmacy Technology, CAS

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

Retain all degrees and options.

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.

In 2013, the Pharmacy Technician program developed a self-study and applied for accreditation from the American Society of Health-System Pharmacists (ASHP). After the program addressed a few suggestions provided by ASHP, the program was reaccredited until 2020.

The program is already following the new standards that ASHP developed, including 46 new learning goals. All of Pharmacy Tech's objectives are aligned with the 46 learning goals.

The program is selective in its admissions, and students have good options for internships in the area. All 12 Pharmacy Tech students passed the certification test this year, and graduates are able to find jobs successfully.

This program is the only accredited pharmacy tech program in the state of Montana. As of 2020, graduation from an accredited program will be required to work in this field. Therefore, an expansion of the program across the state is warranted. The program director recommends that there be one centralized program across the state with Missoula College as the hub.

The number of majors and graduates is given below.

Pharmacy Technology								
		Fall						
First and Second Majors	Degree Level	2008	2009	2010	2011	2012	2013	2014
Pre-Pharmacy Technology	Certificate					8	7	4
Pharmacy Technology	Certificate	17	16	20	12	13	10	13
Pharmacy Technology								
Degree	Major	FY08	FY09	FY10	FY11	FY12	FY13	FY14
Certificate	Pharmacy Technology	11	10	15	14	12	9	7

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Montana University System
PROGRAM REVIEW

Institution: Missoula College-UM

Program Years: 2014-15

List of the programs reviewed:

Radiologic Technology, AAS

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

Retain all degrees and options.

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.

Radiologic Technology developed a self-report in 2013 that addressed the six accreditation standards for the Joint Review Committee on Education in Radiologic Technology (JRCERT). In 2015, an external reviewer, Barbara Kissel, came to Missoula for a site visit to discuss these standards and provide feedback. Ms. Kissel was very complimentary about the quality of the program.

The strengths of the program include a high credentialing pass rate (nearly 100%), strong relationships with clinical facilities, and well-developed safety practices. Students interviewed during the site visit spoke very positively about their relationships with the faculty. The program's faculty members have the appropriate credentials and have opportunities for professional development.

Areas for improvement include increasing the retention rate for the program, expanding online offerings, and hiring more adjunct faculty to help with the heavy teaching loads. The external reviewer recommended having an orientation session for students before they entered the program, as well as more opportunities for volunteer hours in a radiology or health care facility before applying to the program.

The program will be applying for full JRCERT accreditation when Missoula College transitions to their new building.

The number of majors and graduates is given below.

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Radiologic Technology Program										
		Fall								
First and Second Majors	Degree Level	2006	2007	2008	2009	2010	2011	2012	2013	2014
Radiologic Technology	Assoc of Applied Science	28	31	32	34	30	26	24	23	25
Pre-Radiologic Technology	Assoc of Applied Science							69	98	77
Degree	Major	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14
Associate of Applied Science	Radiologic Technology	17	15	14	16	16	13	10	11	11

Montana University System
PROGRAM REVIEW

Institution: Missoula College-UM

Program Years: 2014-15

List of the programs reviewed:

- Energy Technology, AAS
 - Energy Technology, CAS
-

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

Retain all degrees and options.

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 Energy Technology program completed a self-study in 2012-2013, followed by a full program review in 2014-2015. An external evaluator, Josh Turner, provided a thorough analysis of the current state of the program. The program's numerous strengths were well highlighted in both the self-study and external evaluator's report. The program should be commended for its high volume of scholarly productivity and the exceptional quality of teaching (as evidenced by a recent major University award). The program has been very successful in attracting external grants, and has recently applied for an MUS Research grant.

Energy Technology has developed strong relationships with several external entities. The program review found that there were ongoing efforts for community outreach (e.g., Hive), business partnerships (e.g., Blue Marble Biomaterials and Satic), collaborations with other institutions (e.g., Browning Community College and Blackfeet Community College), and connections to other programs on campus (e.g., the Climate Change Studies Minor).

The top future goal is to increase enrollment, which can be done by emphasizing the pre-engineering track, as well as strengthening the connections to UM-M's Department of Physics and Astronomy. The program also plans to develop additional hands-on experiences and problem sets, so that each course has practical and applied aspects. Another task is to work with the Lifelong Learning Center to help students who need developmental math. Finally, the department would like to address the co-convening issues for courses that are taught simultaneously online and face-to-face, and help students feel a sense of connection with the University of Montana.

The number of majors and graduates is given below.

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Energy Technology								
		Fall						
First and Second Majors	Degree Level	2008	2009	2010	2011	2012	2013	2014
Pre-Energy Technology	Associate					14	1	1
Energy Technology	Associate	38	80	94	87	44	41	30
Energy Technology								
Degree	Major	FY08	FY09	FY10	FY11	FY12	FY13	FY14
Certificate	Energy Technology							2
Associate of Applied Science	Energy Technology		2	2	13	18	14	5