# MONTANA STATE UNIVERSITY

## Mountains & Minds

## Montana State University: Mid-Cycle Review
## Responses to Items from Past Reviews

### Remaining items from prior evaluations

***Eligibility Requirement 3.*** In August 2012, the Commission additionally asked that we provide verification of the governing Board's approval of the University's Core Themes. This came about because our November 2011 submission of the Core Themes to the Montana Board of Regents was handled as an information item, so no action was taken to approve the Core Themes. This was remedied in November 2012 when the Core Themes were resubmitted as an action item for Board approval. That approval was granted on November 15, 2012.

Attachments
- ITEM 157-2001+R1112: MSU-Bozeman Core Themes
- Minutes of the Montana Board of Regents Meeting, November 15-16, 2012 (see p. 3 for record of approval of Item 157-2001+R1112: MSU-Bozeman Core Themes)

Note: With the Mid-Cycle Report we have decided to update our Core Themes yet again to align with MSU's Strategic Plan which was approved in November 2012. Board approval is currently being sought for the updated Core Themes. We anticipate approval in September 2014.

*Recommendations from prior evaluations*

In February 2012 the Commission requested that Montana State University address Recommendations 5 and 6 of the Fall 2011 Year One Peer-Evaluation Report in our Year Three Self-Evaluation Report (now the Mid-Cycle Report). These recommendations are:

5.  The evaluation panel recommends that either additional resources be generated to support such areas as research, graduate education, undergraduate research, faculty and staff development, and facilities management or that strategic reallocations be made to ensure such support and that the progress by which this is achieved by consultative, participatory, and transparent consistent with the University's own commitment to those values (Recommendation 1 from the 2009 Comprehensive Evaluation, Standard 7.B.1) (new Standards 2.F.1; 3.A.2, 3.A.4; 4.A.5 and 5.B.1).

6.  The evaluation panel recommends that the University work with the Board of Regents and the Commissioner of Higher Education, Montana University System, to develop comprehensive policies and practices that will ensure competitive salaries and benefits for the recruitment and retention of faculty, staff, and administrators (Recommendation 3 from the 2009 Comprehensive Evaluation, Standards 4 and 7) (new Standards 2.B.1 and 2.B.4).

Our responses to these recommendations follow.

## Recommendation 5. Additional Resources

We have experienced rapid enrollment growth in recent years which has generated a significant increase in tuition revenue, over $6M has been added to the Provost's budget since FY 2012, with over half of that amount coming from additional tuition revenue. [Revenue vs Expense Trend worksheet appended] These funds from the Provost represent a portion of the funds that have been reinvested in the institution to:

*   Add additional sections to meet student demand
*   Hire additional faculty (tenure-track and non-tenure-track)
*   Incentivize research
*   Fund two rounds of strategic investment proposals guided by the Core Themes (first year) and Strategic Plan (second year)
*   Build graduate education
*   Increase support for undergraduate research
*   Improve advising support by implementing DegreeWorks
*   Fund a new Center for Faculty Excellence to support faculty development
*   Continue to manage and make progress on the maintenance of our facilities

These expenditures are guided by the recommendations of a Budget Council, advisory to the President, created in 2010. The council's charge is: "To create, communicate and implement logical and easily

understood fiscal processes that lead to fair budgetary guidance or resource allocations that directly support University strategic goals and priorities."

## Additional Sections
In the early years of the increasing enrollments, the philosophy behind adding sections was simple: ensure that there were enough seats available for all entering students to be able to create a schedule that would allow them to make progress towards a degree. A total of $1.4M (one-time-only, or OTO funds) was used to add additional sections in 2011-12 and 2012-13. [Strategic Plan Progress Report 2013 appended] Also in 2011, $1.1M in base funding was moved from the Provost's budget to rebase college budgets, replacing OTO funds that had been used to add sections in prior years. Moving the base funding to the Dean's budgets allowed the Deans to make decisions on how best to staff these courses for the future.

However the students who entered in large numbers in the past are now reaching the upper division. Eighteen new sections of upper division courses in engineering, the fastest growing college, will be added in Fall 2014 to accommodate these increased upper division enrollments.

## Additional Faculty
The Institution invested $3.1M in new tenure-track faculty lines in 2011-12 and 2012-13. The new faculty lines both support the increased enrollments and represent a significant investment in the research mission. Start-up packages for new faculty between 2011 and 2013 totaled $6.3M. [Provost's Update 1/15/2013 appended]

## Incentivize Research
Like many institutions, Montana State University allowed active research faculty to augment their salaries from research grant funds. Changes in Federal guidelines required a change in the practice. A new incentive plan allowing active research faculty to receive financial incentives from pooled institutional funds rather than directly from grants was approved in August 2013. Details of the research incentive program are available in the appended policy document.

## Strategic Investment Proposals
The faculty members were invited to submit strategic investment proposals in 2011-12 and again in 2012-13. In 2011-12, the Institution's Strategic Plan was still being developed, so the Core Themes listed in the Year One report were used to make funding decisions. Once the Strategic Plan was adopted, the strategic goals in that plan were used to make funding decisions. However the strategic goals were developed from and align with the Core Themes.

The proposal process included an open call for proposals, initial ranking by the unit directors (primarily deans) with all proposals submitted to the Budget Council for consideration. Proposers of proposals scored high by Budget Council were asked to present their proposal and respond to questions at an open meeting. Then the Budget Council recommended proposals to the President for funding. Final funding decisions were made by the President.

- In 2011-12 there were 74 proposals submitted, and 16 were funded for a total of $1.8M ($1.2M base, $0.6M OTO). [list of FY12 funded proposals is appended]
- In 2012-13 a total of $2.8M ($1.2M base, $1.6M OTO) was recommended to the President for funding. [list of FY13 funded proposals is appended]

## Building Graduate Education

One of the 2012-13 Strategic Investment Proposals (SIP) was related to building infrastructure for graduate education: $51K for strategic recruitment of graduate students. A significant portion of the proposal was used to update admissions software.

Additionally, base funding of $216K in FY13 and FY14 was set aside to provide graduate (PhD) recruitment stipends of $18K per student, plus a tuition waiver. In FY13 the Provost augmented the program by adding $108K for an additional six student stipends. [Graduate School Recruiting Programs appended]

The College of Engineering also received FY14 SIP funding $115K to build PhD capacity in their programs. This funding will be used to add two $18K stipends for new PhD students in each of the five engineering departments, plus fund three additional stipends in any department as needed.

## Increase Support for Undergraduate Research

Funding for undergraduate research at MSU comes primarily from three sources: Provisional base funding through Academic Affairs, externally-funded programs that include an undergraduate research component, and externally-funded grants to individual PIs. We are planning to develop a coordinated system for tracking undergraduate research expenditures and participation across the entire university, but this system is not yet implemented. We present preliminary results showing expenditures on undergraduate research for Fiscal year 2014 and trends in central funding of undergraduate research.

### *Base funding through Academic Affairs*

The Undergraduate Scholars Program (USP) is the largest and most diverse undergraduate research program at MSU awarding approximately $280,000 to support 220 student projects in a wide range of academic disciplines. In 2012 the Undergraduate Scholars Program submitted a proposal to the Provost requesting stable base funding for student awards and was granted a three-year provisional award (FY 2013-15) with the understanding that it would become a permanent budget line-item starting in FY 2016 if assessment goals defined in the proposal were met. Prior to this time the USP director raised ad-hoc funding form a variety of sources including the VPR, Montana EPSCoR, the Colleges, etc. The proposal included addition of 0.5 FTE for USP staff bringing the total FTE to 1.5 (Director, 0.5 FTE; Program Coordinator II, 1.0 FTE). The transition to base funding has transformed USP operations by facilitating long-range budgeting and strategic expenditures to improve and expand undergraduate research opportunities.

During the past eight years funding for USP has nearly doubled allowing a substantial increase in the number of awards from fewer than 150 in AY 2006-07 to 220 in AY 2013-14. The standard stipend was increased from $1500 to $1800 in AY 2012-13 (Figure 1).
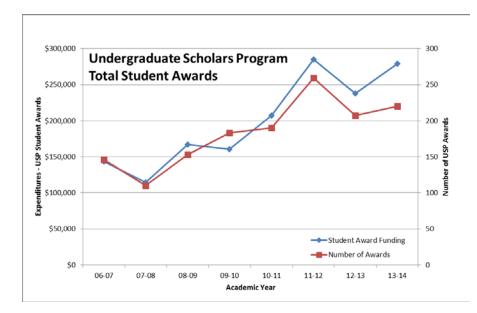
**Figure 1.** *Eight-year trend in number of awards and total expenditures for student awards in the Undergraduate Scholars Program. The request for base funding was based on expenditures during the peak year (AY 2011-12). And have been effectively flat since then. The apparent decrease in expenditures in AY 2012-13 is partly due to the way summer awards were distributed across fiscal years (beginning 1 July).*

## *Programs funded by external grants*

MSU's Office of Sponsored Programs provides a report on expenditures for undergraduate researchers. This report lists 437 unique undergraduate students paid from 290 different OSP-monitored funding sources in FY14. [OSP Student Research appended] The average award was approximately $1300.

Examples of grant-funded programs that support undergraduate researchers include:

- Montana IDeA Networks of Biomedical Research Excellence (INBRE, NIH)
- Montana Space Grant Consortium (NASA)
- American Indian Research Opportunities (AIRO)
- Hughes Undergraduate Biology Program (HHMI)

## *Individual research projects and assistantships funded through grants to faculty PIs*

Expenditures on student labor (Banner Acct. 61225) on all research grant accounts total more than $1.395 million for FY 2014. This figure is an estimate of compensation to students who participated in the MSU research enterprise at any level and includes students performing routine laboratory tasks, and students carrying out clerical and support tasks as well as students genuinely engaged in active research.

## Improving Advising by Implementing DegreeWorks

In 2012-13 the implementation of a new advising program, called DegreeWorks, was completed to assist students and advisers in course planning. The new program allows both students and advisers to more easily understand how one semester's course selection impacts progress towards a degree. The DegreeWorks software was on all four campuses and is currently begin expanded to include graduate programs as well.

**Center for Faculty Excellence**
In 2011 the Provost established Montana State University's Center for Faculty Excellence to support the professional enhancement of our faculty. The Center was recently recognized as a 2014 Exemplary Teaching and Learning Center at the 25th International Conference on Teaching and Learning held in Ponte Verde Beach, Florida. A news article announcing that award states[1]

> *In 2013, the center offered 72 workshops with more than 1,800 attendees. Workshop topics included: teaching strategies to promote student learning, motivation, and retention; design and implementation of best practices; and ways to enhance research.*
>
> *Lockhart said the center awarded more than $200,000 in grants in 2013 to support faculty in their teaching and research. The center offered training for faculty interested in using MSU's two new technology-enhanced active learning, or TEAL, classrooms. It also organized a pair of book discussion groups, four writing groups that met weekly to review each other's research writing, and supports an early career faculty-mentoring program.*

Dr. Marilyn Lockhart has served as the interim Director of the Center since it was created, and was recently named Director following a national search.

**Facilities Management**
Montana State University has been working aggressively to reduce the level of deferred maintenance on our facilities. As far back as 1992 MSU employees began developing a tool, now called the Facilities Condition Inventory [FCI information appended], to assess and quantify a building's physical condition, and the average condition of the institution's facilities. This has allowed priority needs to be identified and addressed, and the overall condition of our facilities to be tracked.

The Facilities Condition Inventory tool received the APPA-Leadership in Educational Facilities organization's national "Effective and Innovative Practice Award" in 2008. In addition, the tool is now used to assess the condition of all K-12 schools in Montana.

The value that is used to quantify the condition of an institution's facilities is termed the Facilities Condition Inventory, or FCI. FCI values range from 0 to 100%.

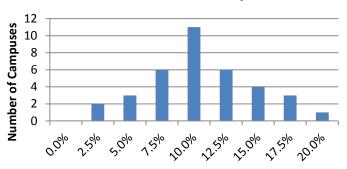**Facilities Condition Inventory**
- Good    0 to 5%
- Fair      5 to 10%
- Poor     Greater than 10%

MSU's current average FCI value for damage and wear on buildings is 6.8%. [MSU Deficiency report appended]

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[1] MSU Center for Faculty Excellence receives international recognition, April 8, 2014 -- MSU News Service

For purposes of comparison, a 2007 report by the Rockefeller Institute of Government entitled Analyzing SUNY Facility Renewal and Backlog Needs [appended] included FCI values for SUNY campuses. The following histogram shows how FCI values were distributed for the various SUNY campuses.

## FCI Values at SUNY Campuses



A 2012 report with the same title produced by Sightlines LLC [appended] provides a table of FCI values for eight state university systems. 2012-13 FCI values from that report are listed here.

| System | FCI |
|---|---|
| California State University | 12% |
| University of California | 25% |
| City University of New York | 14% |
| Minnesota State Colleges and Universities | 12% |
| Oregon University System | 21% |
| State University of New York | 10% |
| University of Hawaii | 8% |
| University of Texas | 6% |

While the SUNY data sets were chosen for comparison simply because they appeared in a Google search on "typical FCI values for universities", MSU's FCI value of 6.8% appears to be well within the range of FCI values expected on university campuses.

In addition, the FCI values for individual buildings and systems allows MSU to develop strategies for making the best use of renovation funds. Recently completed projects include:

- Renne Library Campus Testing Services – response to a need for additional testing stations for increasing numbers of proctored examinations, including the new on-line Fundamentals of Engineering Examination
- Linfield Hall Remodeling – ADA compliance renovation (elevator installation and bathroom renovations) in a historic building, plus a complete renovation of a large lecture hall
- Blackstone Launchpad – update of space in the Strand Union Building to support the Blackstone Launchpad campus entrepreneurship program funded by the Blackstone Charitable Foundation.

- Technology-Enhanced Active Learning Classrooms (TEAL) – Two TEAL classrooms have been built to support a new pedagogy that encourages active learning and student collaboration. A third TEAL classroom has recently been approved for funding.
- Gallatin Hall Residence Suites – a new residence hall for upper-division students designed to house 70 students using suite-style accommodations. Additionally, construction has started on a new 400-bed residence hall.
- Plant Growth Greenhouse LED Project – LED lights were installed, replacing 1000 Watt high–intensity discharge (HID) lights. The new LED lights yield a 70% energy savings.
- Fieldhouse Repairs and Upgrades – repairs addressed roof damage from a severe hail storm in 2010. Upgrades include the installation of new arena floor to support track and field activities, replacement of existing bleachers, and improvement of the sound system. The goal was to make the facility more inviting for a wider range of institutional and public uses. ($3.2M).
- North Hedges Window Upgrade – All single pane windows were replaced with Low E double pane windows to improve energy utilization.

Projects underway include:

- Jake Jabs College of Business and Entrepreneurship – new building made possible by a $25M donation from alumnus Jake Jabs.
- Creative Arts Seismic Retrofit – funded by a grant from FEMA, a number of structural upgrades are being made to the buildings comprising the Creative Arts Complex. The upgrades are designed to improve structural performance in the event of an earthquake.
- Cheever 215 Lecture Hall Renovation – a total renovation of this large lecture hall including fixtures and finishes, teaching technology and ADA upgrades.
- Miller Dining Hall Renovation – a complete renovation that changes the way meals are prepared and served, following modern trends. Once this renovation is complete, Harrison and Hannon dining halls will also be renovated.
- Fieldhouse Arena Upgrades – upgrades include the installation of new arena floor, replacement of existing bleachers, and improvement of the sound system. The goal is to make the facility more inviting for a wider range of uses.
- ADA Transition Plan – the University is updating the ADA Transition Plan which serves both as an inventory of ADA needs and a plan for addressing shortcomings.

Significant renovation projects in recent years have also included

- Cooley Lab Renovation – total renovation of a very significant research building ($17M)
- Hapner and Langford Residence Hall Improvements – room remodels (2011) and improvements to public spaces and restrooms (2012) in these residence halls.
- Stadium End Zone Project – replacement of existing East end zone bleachers with new stadium seating, adding restrooms, concessions, and a visitor locker room ($10M)

- [Renne Library Commons Renovation](#) – conversion of the main floor of the Renne Library to a technology-based student collaboration and study space ($600K). Usage of the space has, based upon entry counts, has increased dramatically since the conversion.
- [Gaines Hall Renovation](#) – the building was taken down to columns and slabs, including the removal of the large lecture hall. The renovation included updated classrooms, offices, instructional labs, and a new lecture theatre.

These renovation projects are having an impact on the amount of deferred maintenance on campus.
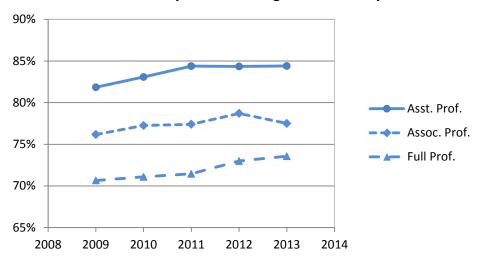
Projected major projects include

- [Renovation of Romney Hall](#) – this is currently an underutilized building near the center of campus. No longer adequate for its original function as an athletics facility, it is the University's top priority for State funding in this year's legislative session. The goal is to give this classic building a new life as a center for student learning ($25M)
- [Norm Asbjornson Innovation Center](#) – starting with a gift of $50M from alumnus Norm Asbjornson (March 2014), the changes envisioned for the south end of campus include not just the Norm Asbjornson Innovation Center, but additional facilities to support the Core Themes of learning, discovery, and integration. Planning is just getting underway but the current estimate for the south-side projects is about $80M.

# Recommendation 6. Salaries

The Year One report was prepared during the period after the faculties (tenure-track (TT) and non-tenure track (NTT)) had each voted to form a union and before negotiation of the collective bargaining agreements (CBAs) had been completed. During this transition time we had very limited options for addressing the significant challenge of adequate faculty compensation. Fortunately, those limitations have been removed and we are beginning to make some progress in this difficult area.

With the ratification of the CBAs, we were once again able to award merit and market increases for both TT and NTT faculty. The raise amounts under the CBAs were modest, but at least helped prevent further erosion in MSU faculty salaries when compared to Oklahoma State University (OSU) Salary Survey averages. (Values for very high research institutions are used in the comparison.)

**MSU Salary as a Percentage of OSU Salary**



The salary data show that, in general, we are making slow progress towards improving MSU average salaries by rank against OSU comparators. Over the past five years MSU Assistant Professor average salary has moved from 82 to nearly 85% of the OSU average for that rank. The values for full professor show a similar improvement trend, but at lower levels from approximately 71% to nearly 74% of the OSU average. Unfortunately we saw a dip in the trend for associate professor average salary compared to the OSU average. Looking at the actual salary values (in the following chart) it is clear that the dip is the result of a marked increase in the OSU average salary for associate professors. The MSU average salary for associate professors also increased between 2012 and 2013, just not as greatly as the OSU value.

## MSU Salaries compared to OSU Salaries



* 2014 MSU data represents Budget Office and OPA projections for FY2015 post-raise salaries excluding unknown new faculty hires and separations

MSU salaries are not where we would like them to be, but specific steps have been taken in coordination with OCHE to address the issue, and we are beginning to see demonstrable improvements in this area.

Several administrative changes have been implemented since 2011 that have also helped with faculty salary and retention issues.

- A market pool has been established. Market raises have been introduced to move groups of faculty towards their OSU peer group average.
- A merit pool has been established and the amount of the merit raise has been increased. These higher merit raises are seen as more tangible rewards for excellent faculty performance.
- An equity pool has been established to address individual and group inequity issues, such as the salary inversions, gender inequities, and disparities between ranks.
- Greater scrutiny is now given to starting salary offers for new faculty members. While we do not need to offer 100% of OSU in order to attract quality faculty members, we no longer allow offers at 60% of OSU. Making higher initial offers has helped reduce the discrepancy between MSU and OSU salary averages, especially at the assistant professor level.
- The raises awarded at promotion have been changed from flat dollar amounts to percentages of the faculty member's salary. The percentage increases will benefit faculty at higher salary levels, while the dollar amounts protect faculty at lower salary levels.

**Promotion Raises**

|  | Past Practice | New Policy (FY13) |
|---|---|---|
| Promotion to Assoc. Prof. | $3000 | Greater of $3000 or 6.5% |
| Promotion to Professor | $6000 | Greater of $6000 or 10% |

- A retention pool has been established. This has reduced the burden on deans' personnel budgets. New procedures allow retention offers to be made before a faculty member receives a competing offer, which improves the likelihood of retaining top faculty. Under these new processes we have been able to retain approximately 75% of the faculty who receive a retention offer.

## *Classified Staff Compensation*

Employees in classified staff positions have received essentially the same raises as faculty, as shown in the following table.

**Raises for MSU Staff and Faculty**

|  | FY10 | FY11 | FY12 | FY13 | FY14 | FY15 |
|---|---|---|---|---|---|---|
| Staff* | 0** | 0 | 1% + $500 | 2% + $500 | 2.25% + $250 | 2.25% + $250 |
| Faculty | 0 | 0 | 1% + $500 | 2% + $500 | 2.25% + $250 | 2.25% + $250 |

\* Staff raises vary slightly by union contract. For example, in FY15 the MPEA Classified Staff collective bargaining agreement called for raises of 2.25% + $0.12/hr rather than $250/FY. For a full-time employee $0.12/hr and $250/FY are virtually equivalent.

\*\* Some classified employees were awarded one-time payments of $225 to $450 in FY10.

It is significant to note that, with support from students, Regents, and the Office of the Commissioner of Higher Education (OCHE), MSU was able to award salary increases of in fiscal years 12 and 13, even though the 2011 State Legislature did not authorize any funds for this purpose during that biennium. In May 2011, after the conclusion of the legislative session, the students recommended to the Board of Regents that tuition should be increased to support faculty raises, and tuition was raised by 5% in Fall 2012.

A chart listing annual salary increases since FY88 for various types of positions is available at http://www.montana.edu/opa/facts/SalaryIncreases.html.

## Montana State University Mid-Cycle Report – Part I

The following prompts were provided by NWCCU as Guiding Questions for completing Part I of the Mid-Cycle report. Please note that I have changed the order of the first two bullet points since our response on the validity of our core themes and objectives will impact how we define mission fulfillment. Abbreviated versions of these bullet points will be used to provide structure for this portion of our Mid-Cycle report.

- Are your core themes and objectives still valid?
- Mission fulfillment is a "meta assessment" of institutional effectiveness. Describe/explain your process of assessing mission fulfillment. Who is involved in the assessment? Is the Board of Trustees involved? Can you articulate the key assessment variables that determine and assess the alignment of mission with mission fulfillment?
- Is the institution satisfied that the core themes and indicators selected are providing sufficient evidence to assess mission fulfillment and sustainability? If not, what changes are you contemplating?
- Are your indicators proving to be meaningful? Do you have too many indicators or too few?
- What has the institution learned so far and what changes are contemplated? What has been your progress to date using the data? Do the data tell you what you are looking for?
- How are data being collected, analyzed, and utilized and the findings communicated to constituents?
- Moving forward to the Year Seven what will you need to do?

## *Are your core themes and objectives still valid?*

The Core Themes and objectives in our Year One report were used as the groundwork for a more detailed Strategic Planning effort that was launched nearly simultaneously with the submission of our Year One report. The Strategic Planning effort involved a taskforce of over fifty individuals from a variety of roles on campus, and leaders from off campus as well. The new Strategic Plan was approved 12 months after the Year One report was submitted.

When the new Strategic Plan was completed, there was still a high degree of correlation to the Year One report's Core Themes and objectives.

| Year One Report: Core Themes | Strategic Plan: Goals |
|---|---|
| 1. Educate students | Learning |
| 2. Create Knowledge and Art | Discovery |
| 3. Serve Communities | Engagement |
| 4. Integrate Learning, Discovery and Engagement | Integration |
| 5. Stewardship[1] | Stewardship |
| | Access |

A document illustrating how the objectives and indicators in the Year One report compare to the objectives and metrics in the Strategic Plan is provided in the reference materials [Comparison of MSU Year One Report and Strategic Plan Aug 2014]. A portion of the comparison for Core Theme 1: Educate Students is shown here as an example.

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[1] In response to an evaluators' suggestion that the Core Themes should more closely reflect the institutional mission, the Stewardship core theme was removed from the updated Year One report submitted in March 2012. However the members of the Strategic Planning Committee felt strongly that stewardship should remain one of the goals of the institution. It is being restored as part of the updated Core Themes.

| Updated Year One Report | Strategic Plan |
|---|---|
| **Core Theme 1: Educate Students** | **Strategic Goal: Learning** |
| ***Objective 1: Increase graduation rates at Montana State University.*** | ***Objective L.2: Increase graduation rates at MSU*** |
| 6-year bachelor's graduation rate will increase from 51% to 62%. | Metric L.2.1: By 2019, the bachelor's graduation rate will increase from 51 percent to 65 percent as measured by the six-year graduation rate. |
| Graduate degrees awarded will increase from 548 to 650. | Metric L.2.2: By 2019, the number of graduate degrees awarded will increase from 548 to 625 per year. The number of doctoral degrees awarded will increase from 56 to 80 per year. |
| Associate degrees conferred will increase from 38 to 70. | Metric L.2.3: B By 2019, the number of associate degrees conferred will increase from 38 to 70 per year. Workforce certificates conferred will increase from 35 to 65 per year. |
| First time, full time freshmen fall-to-fall retention will increase from 74% to 82%. | Metric L.2.4: By 2019, the first time, full time freshmen fall-to-fall retention rate will increase from 74 percent to 82 percent. |

| Updated Year One Report | Strategic Plan |
|---|---|
| ***Objective 2: Increase Job Placement and Further Education Rates.*** | ***Objective L.3: Increase job placement and further education rates.*** |
| Percent of graduates entering Montana workforce will increase from 38 to 45. | Metric L.3.1: By 2019, the percent of graduates employed full time in their field or in positions of their choosing will increase from an average of 62 percent to 70 percent. |
| Percent of graduates pursuing an advanced degree will increase from 22% to 25%. | Metric L.3.2: By 2019, the percent of graduates pursuing an advanced degree will increase from an average of 21 percent to 25 percent. |

While there is a strong congruence between the two documents, they are not equivalent. The Strategic Planning Committee started with the Core Themes from the Year One Report and expanded and developed those themes to create the new Strategic Plan. The fact that the Core Themes could survive a year-long vetting process largely intact is strong evidence that the Core Themes are still valid and continue to reflect the ideals and goals of the faculty. With this Mid-Cycle Report we are updating the Core Themes to align exactly with the Goals of the Strategic Plan.

> **New Core Themes**
> - Learning
> - Discovery
> - Engagement
> - Integration
> - Stewardship
> - Access

We have submitted a request to the Montana Board of Regents to approve this update of the Core Themes. We anticipate that the Regents will review our request at the September 17-18, 2014 meeting, prior to the evaluators' site visit in October 2014. [Submitted Board item is appended]

Additionally, we will use the objectives and metrics of the Strategic Plan as the objectives and indicators corresponding to the Core Themes. In this manner the Strategic Plan will become the single planning document used on campus for both strategic and accreditation purposes.

## *Assessing Mission Fulfillment*

We define mission fulfillment as making sufficient progress towards the goals defined in the Strategic Plan. This approach is required for several reasons:

1. MSU's Strategic Planning time period is not aligned with the seven-year accreditation cycle. While the targets initially established in the Year One report were timed to coincide with the Year Seven report, the taskforce charged with developing the Strategic Plan determined that additional time was needed to reasonably accomplish the goals of the Strategic Plan. They moved the target dates for most metrics out to 2019, two years after our Year Seven report will be submitted (and three years after the data will be collected for the Year Seven report).
2. We have no expectation that all of the goals in the Strategic Plan will be fully met. The Strategic Plan, like the Mission and Core Themes which preceded it, includes aspirational goals. For example, the goal "By 2019, all graduating students will have had a substantial curricular experience that integrates learning, discovery and engagement" will be extraordinarily difficult to accomplish in the near term. But we believe that we can make better progress by aiming high, even if we fail, than by setting easy targets.
3. We are still defining some of the targets. In areas where data has not historically been collected we first need to establish a baseline, and then establish targets. The Planning Council and the Office of Planning and Analysis have been working to collect the baseline data for the past year. Non-numeric targets, such as "increase" are appropriate for metrics in newer areas such as Engagement and Integration for which the institution is only now beginning to collect data. In AY15 Planning Council will establish additional numeric targets, where appropriate, for strategic goals for which baseline data is available.

With those qualifications, we still want to have a quantifiable way of determining the extent of mission fulfillment. First, we have established interim values for numeric targets for 2017 that are scaled back to 70% of the 2019 target. [Attachment: Interim Targets] For established Core Themes such as Learning, we anticipate achieving 75% of the targets. In newer areas such as Integration, achieving 50% of target values will be viewed as success. Overall, we define mission fulfillment as meeting at least 60% of the interim targets by the time of the Year Seven report.

## *Sufficient evidence to assess mission fulfillment?*

With multiple indicators (or metrics) for each objective in the Strategic Plan, we believe that we will have sufficient evidence to assess the extent of mission fulfillment.

## Indicators: Meaningful and Sufficient?

We believe that the number of indicators is certainly sufficient, perhaps excessive in some areas, and the Office of Planning and Analysis and the Planning Council continue to work to refine the metrics. We still have several Core Themes that are lacking baseline data and targets.

| Core Theme | Targets Established |
|---|---|
| 1: Learning | Well established |
| 2: Discovery | Some development required |
| 3: Engagement | Development required |
| 4: Integration | Development required |
| 5: Access | Well established |
| 6: Stewardship | Some development required |

## Progress to date

The Office of Planning and Analysis annually publishes a [Strategic Plan Progress Report](#) on the University's website. The entire report is available online, and only selected portions of the Learning and Discovery sections are included here as examples of the way progress on strategic goals is being reported to the faculty and the public. Examples here are from the first year progress report (2013); the progress report for the second year will be posted by mid-September, 2014.

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**Learning**

MSU has always prepared graduates to meet the challenges of tomorrow. Successful, sought-after graduates are part of our legacy, and preparing students is central to our mission. MSU students learn in the classroom, lab, studio and field, through a hands-on, student-centered curriculum that integrates learning, discovery, and engagement in and out of the classroom.

_Goal: MSU prepares students to graduate equipped for careers and further education._

- Objective L.1: Assess, and improve where needed, student learning of critical knowledge and skills.
- Objective L.2: Increase graduation rates at MSU.
- Objective L.3: Increase job placement and further education rates.

_Strategies_

- Clarify, systematize and automate the process for assessment of learning outcomes
- Target success in key introductory level courses with supplemental instruction, flipped classrooms, co-curricular study options, resource centers and peer mentoring
- Dramatically expand tutoring services
- Bring support centers to the students through expanded hours, added locations and renovated facilities
- Improve and add to advising and student success programs

*Budget alignment (2012–13 investments unless otherwise noted)*

- $3.1 million in new tenure-track faculty lines in 2011–12 and 2012–13
- $1.4 million for additional class sections to serve growing enrollment in 2011–12 and 2012–13
- $25 million gift to fund construction of new Jake Jabs College of Business and Entrepreneurship and develop new college programs
- $150,000 to support strategic investment proposals for math, statistics, and chemistry instructional redesign and enhancement
- $455,000 for Office of Student Success programs like Smarty Cats tutoring, financial literacy and career coaching
- $1 million in renovated classroom and collaboration spaces
- $7 million investment in new suite-style residence hall to enhance retention
- $11 million investment in residence and dining hall upgrades since 2011

*Successes*

1. TEAL classroom successes—In support of its learning objectives, MSU conducted a pilot test of a technology-enhanced active learning, or TEAL, classroom in 2012-2013. The TEAL classroom in Gaines Hall enabled 240 undergraduate and graduate students from all eight of MSU's colleges to collaborate on assignments during class hours in a high-tech space equipped with flat screens and data ports for laptop computers. A key feature of TEAL classrooms is the "flipped" structure of the course so students read or view lecture materials outside of class and actively solve problems in class. This innovative new teaching method and incorporation of technology has demonstrated significant improvement. In the case of Statistics 216, for example, the TEAL classroom resulted in a 68 percent decrease in students having to retake the course.
2. Banner Year—Twenty-five MSU students won or earned honorable mentions for major scholarships and awards during the 2012-13 academic year.
    - 1 Marshall Scholar
    - 1 Rhodes Scholar
    - 1 Newman Scholar
    - 1 Fulbright Scholar
    - 1 Udall Scholar
    - 4 Goldwater Scholars
    - 1 National Defense Science and Engineering Fellowship
    - 7 National Science Foundation Graduate Research Fellowships
3. Success in Student Competitions—Student competitions are a way to validate MSU's academic excellence compared to other institutions across the country. In the past year MSU students excelled in a broad spectrum of competitions across many disciplines.
    - Animal science students won the Western Region Academic Quadrathlon and placed third in the national competition.
    - Business students took third in the John Ruffatto Business Plan competition.
    - Finance students won first at the region's Chartered Financial Analysts Institute Research Challenge and advanced to the North American competition.

- Civil engineering students earned a first-place trophy at the estimating competition of Associated Schools of Construction.
- MSU engineering students recently won the Judges Innovation Award at NASA's fourth annual Lunabotics Mining Competition at the Kennedy Space Center.

4. Investing in Students—MSU has invested in a variety of support programs that help students succeed. Students have access to free peer-tutoring through the Smarty Cats program, and during the 2012-2013 academic year 15,000 hours of tutoring were provided. Writing assistance is available in a renovated and expanded Writing Center and at a satellite center located in the library. DegreeWorks, a recently launched online tool, enables students to map out their college path and stay on track to graduate, giving advisors time to focus on individual counseling.

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## Discovery

Innovative and significant research and creative activities are a recognized hallmark of MSU, where faculty, students and staff all participate in the creation of knowledge and art.

*Goal: MSU will raise its national and international prominence in research, creativity, innovation and scholarly achievement, and thereby fortify the university's standing as one of the nation's leading public research universities.*

- Objective D.1: Elevate the research excellence and recognition of MSU faculty.
- Objective D.2: Enhance infrastructure in support of research, discovery and creative activities.
- Objective D.3: Expand the scale, breadth and quality of doctoral education.

*Strategies*

- Improve support for faculty active in research and creative activity through enhanced professional development, additional financial support and facilities improvements
- Increase the number of grant-active faculty through strengthened grant-writing support, expanded participation across disciplines, and opportunity hires
- Expand interdisciplinary efforts in research, creative activity and graduate education
- Increase capacity and strengthen recruiting for high quality graduate programs by improving the number and amount of graduate stipends, encouraging more faculty to advise doctoral students, and establishing timely pathways to degree completion

*Budget alignment (2012–13 investments unless otherwise noted)*

- $3.1 million in new tenure-track faculty lines since 2011 (also supports the Learning goal)
- $1.5 million in additional salary and research support to retain MSU's talented faculty
- $6.3 million in new faculty startup packages
- $325,000 allocated for 2013-14 for 18 new competitively awarded graduate assistantships, plus $170,000 awarded in strategic investment proposal process for

enhanced graduate recruiting and 11 additional graduate assistantships in specific programs
- $80,000 for Native American graduate students in science and engineering

*Successes*

1. Cooley Lab Renovation—MSU's Cooley Laboratory, a hub for biomedical research, recently enjoyed a $14.9 million renovation that transformed the building into a state-of-the-art facility for research teams from the departments of microbiology, immunology and infectious diseases, and cell biology and neuroscience. Cooley is the first facility at MSU to earn a prestigious LEED Gold certification from the U.S. Green Building Council for energy-efficient design and construction.
2. Faculty Excellence—In the past year, MSU faculty members have earned many prestigious awards and fellowships in their respective fields. Four faculty fellows were named in their disciplines:
   - Earth Sciences professor and director of the Montana Institute on Ecosystems Cathy Whitlock was named a Fellow of the American Association for the Advancement of Science (AAAS).
   - Land Resources and Environmental Sciences research professor and director of the Montana Water Center Duncan Patten was named a Fellow of the Ecological Society of America (ESA).
   - Marcy Barge, a professor in the Department of Mathematical Sciences, was named a Fellow of the American Mathematical Society (AMS).
   - Mark Young, a professor in the Department of Plant Sciences and Plant Pathology, has been named a Fellow in the American Academy of Microbiology.
3. Breakthrough Discoveries—MSU research has led to many significant discoveries. As a result, MSU holds more than 200 active technology licenses, nearly 90 issued patents and 14 plant variety certificates.
4. Growing Graduate Education—In the past year MSU has made great strides in expanding its graduate and doctoral education.
   - The Board of Regents approved a Doctorate of Nursing Practice and the Professional Masters in Science and Engineering Management programs with the first cohort of students enrolling in fall 2013.
   - The Montana Legislature increased the capacity of the WWAMI Medical Education Program by 50 percent and supported the creation of a Veterinary Medicine Program that will enable 10 Montana students to complete their first year of veterinary school at MSU.
   - MSU renewed its focus on growing PhD programs in 2013 through strategic investments in graduate assistantships, improvements in tracking and advising graduate students through key checkpoints, and a Graduate Education Summit.
5. Prestigious Award for Physicist: NicoYunes, an MSU physicist, won a five-year $500,000 Young Investigator CAREER Award from the National Science Foundation. The CAREER Award is the NSF's most prestigious award that supports the early career development of teacher-scholars and honors outstanding scientists who haven't yet received tenure.

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### *How are data being collected, analyzed, and utilized?*

Data to monitor performance against strategic goals is being collected and analyzed by the Office of Planning and Analysis (OPA) in coordination with other offices across campus. Staff members in OPA have been working since before the Strategic Plan was approved in 2012 to identify data sources, and create mechanisms to collect data required for the Strategic Plan. We took a major step forward in several areas when we began collecting faculty performance data using Activity Insight in Spring 2014. We will begin mining this dataset to better understand faculty and student performance metrics in AY15.

When the Strategic Plan was initially developed in 2011-12, there was a conscious decision not to include institution-level strategies with the plan. Instead, each unit was expected to develop a response to the Strategic Plan that included strategies for making progress towards the strategic goals. Examples of unit-level plans include:

- Office of Student Success
- Academic Affairs
- Administration and Finance
- Colleges and Departments
- MSU Library
- Information Technology Center

Data collected by the Office of Planning and Analysis is used by members of the Planning Council, Faculty Senate, and administration to monitor progress toward strategic goals. Reports on each goal are presented to University Council annually.  Deans Council, Assistant/Associate Deans Council, and other interested campus groups also receive reports. MSU's Executive Team reviews one strategic goal (*aka* Core Theme) in depth each quarter.

### *Moving forward to the Year Seven report*

Montana State University has fully adopted the Strategic Plan and units have responded with their own strategic plans aligned with the institution's goals and including strategies for making progress on the strategic goals. Many millions of dollars in new and reallocated funding have been invested in projects and the strategic goals have been used as priorities and criteria for investment.

We are investing heavily in the Strategic Plan's goals, and there is no doubt that we will be able to show significant progress in our Year Seven report. We have substantial work to do as we plan to demonstrate mission fulfillment by Year Seven.

- We must continue to invest in salaries to attract and retain outstanding staff and faculty, making progress against peer averages.
- We must continue to invest in student support including direct financial aid initiatives, and projects to improve retention and graduation.
- We must get 100% of programs to establish and use assessment plans to validate student learning.
- We must find additional ways to get faculty, staff, and students involved in engagement activities.
- We need to finalize baseline and target values for all metrics so that we can quantify the extent of mission fulfillment for each Core Theme.

These are significant challenges, and Montana State University is committed to achieving the goals of the Strategic Plan.

## Montana State University Mid-Cycle Report, Part II

### Objectives to Indicators to Outcomes

Montana State University has embraced the Strategic Plan as the institution's guide for planning and investment. Our progress report [Strategic Plan Progress Report 2013][2] lists the strategic goals, examples of strategies that have been used to move toward the goals, examples of how the budget has been aligned with the strategic priorities, and successes, or outcomes, observed to date. In this portion of the Mid-Cycle Report we will present several examples of "progressing from objectives to indicators to outcomes."

- Example 1: Learning – TEAL classrooms to improve graduation rates
- Example 2: Learning – Assessment in General Education
  - o 2.1 Quantitative Reasoning
  - o 2.2 University Seminar
- Example 3: Learning – Program Assessment
  - o 3.1 Sociology
  - o 3.2 School of Film and Photography
- Example 4: Discovery – Building the Doctoral Program
- Example 5: Engagement – Revamping the Carter County Museum, and more

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[2] A new Progress Report is scheduled to be distributed in mid-September, 2014.

# Example 1: TEAL classrooms to improve graduation rates

Improving graduation rates and graduation numbers is both an institutional priority and a state system priority. Graduation numbers is one of the key performance indicators currently being used at the system level for the portion of the State allocation that is tied to performance-based funding.

Graduation rates appear in the Strategic plan in Objective L.2 and Metric L.2.1.

> Objective L.2: Increase graduation rates at MSU.

> Metric L.2.1: By 2019, the bachelor's graduation rate will increase from 51 percent to 65 percent as measured by the six-year graduation rate.

MSU has a number of efforts underway (e.g., increase staffing, improve advising, reduce curriculum bottlenecks) to try to improve graduation rates. This example looks at one specific project that has been implemented with hopes of ultimately improving graduation rates.

There is evidence in the research that active learning can promote student success. In 2013 two classrooms were renovated as [Technology-Enhanced Active Learning (TEAL) classrooms](). The rooms have enhanced technology support, and are designed for collaborative learning.
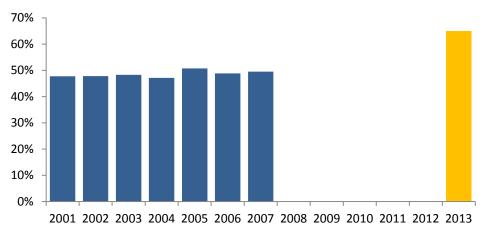
While the TEAL classrooms were being designed and built, the instructors who would utilize the classroom formed a community of interest within the Center for Faculty Excellence and worked together to develop ideas and plans for teaching in an active learning environment.

The results have been dramatic. In STAT 216 the percentage of students earning satisfactory grades (A, B, or C) increased from 66% (over the six semesters prior to using TEAL classrooms) to 86% in the active learning environment.

We observed similarly dramatic results for students taking M 121 College Algebra in the TEAL classrooms. Eighty percent of students taking M 121 in the active learning environment earned satisfactory grades (A, B, or C) compared to 56% of students in the six semesters prior to the opening of the TEAL classrooms.

These results are extremely significant because M 121 and STAT 216 are required mathematics courses taken by the majority of students outside of engineering, and these courses are often roadblocks for students attempting to make progress towards their degree. By removing these roadblocks for many students, they should be able to make better progress towards their degrees.

Because M 121 and STAT 216 are lower-division courses, it will be a few years before we start seeing improvements in success rates in these courses impact graduation rates, but we are collecting graduation rate data as shown in the following chart.

*Metric L.2.1: Percent of Incoming Students who Graduate Within Six Years*

Source: Office of Planning and Analysis

Note: The strategic goal is a graduation rate increasing to 65% by 2019. To determine the six-year graduation rate in 2019, the cohort of students that enrolled in 2013 is tracked to determine the percentage that graduate by 2019 (i.e., within six years). The x-axis on the chart above shows the year of enrollment of each cohort, and is therefore offset by six years from most of the other charts used to report progress on metrics.

## Example 2: Assessment in General Education

The assessment of general education appears in the strategic plan in Objective L.1 and Metric L.1.2.

> Objective L.1: Assess, and improve where needed, student learning of critical knowledge and skills.

> Metric L.1.2: University measures of undergraduate student mastery of critical thinking, oral communication, written communication, quantitative reasoning, understanding of diversity and understanding of contemporary issues in science will be developed by 2014. Targets set in learning assessment plans will be met by 2019.

The general education program at Montana State University was overhauled in 2004 and is now called CORE 2.0. CORE 2.0 was originally designed using only input assessment processes to determine which courses to include in the general education program, and when reviewing existing courses. Since 2010 the Core 2.0 Committee has focused on redesigning the general education assessment process using direct outcomes assessment.

One of our first discoveries as we attempted to develop direct outcomes assessment processes was that the stated learning outcomes for each CORE area were poorly written for outcomes assessment.

Ultimately we decided we needed to update and rewrite all learning outcomes for the general education program to tighten the expectations and make the outcomes assessable. As examples, the before and after learning outcomes for two CORE areas are shown below:

## Quantitative Reasoning

**Before**

A Q course will improve a student's ability to:

1. Reason analytically and quantitatively.
2. Think critically and independently.
3. Apply the acquired skills to other courses.
4. Improve their ability to make informed decisions that involve interpreting quantitative information.

**After**

Students completing a Core 2.0 Quantitative Reasoning (Q) course should demonstrate the ability to:

1. interpret and draw inferences from mathematical or statistical models represented as formulas, graphs, or tables,
2. represent mathematical or statistical information numerically and visually, and
3. employ quantitative methods such as arithmetic, algebra, geometry, or statistical inference to solve problems.

## University Seminar

**Before**

Through the University Seminar, students will:

1. Improve their ability to
   a) speak effectively about their ideas.
   b) guide their education by asking and exploring their own questions.
   c) prepare and deliver a thoughtful oral presentation.
   d) listen effectively.
   e) incorporate diverse points of view in developing arguments and reaching conclusions.
   f) read critically and interpret complex texts.
   g) write a thoughtful college paper.
2. Strengthen habits of critical thinking.
3. Expand interests in the humanities, social sciences and natural sciences.
4. Come to know a faculty member, student fellow, and other first-year students.
5. Enjoy the discussion and development of ideas and participation in a community of learners.

**After**

Through completion of the US Core students will:

- Demonstrate critical thinking abilities
- Prepare and deliver an effective oral presentation
- Demonstrate analytical, critical, and creative thinking in written communication

Note: Some of the desirable but less assessable language of the old learning outcomes was moved to an introductory paragraph presented just ahead of the new list of learning outcomes.

Additional information on CORE learning outcomes is available at www.montana.edu/core2.

Assessment plans based on direct assessment of student work have been or are being prepared for each area of the general education program.[3] The assessment plans for the Q (Quantitative Reasoning) and US (University Seminar) areas are presented here.

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[3] Assessment plans have been developed in CORE areas Q, US, I, D, CS. Assessment plans are being developed for the R and W CORE areas.

# Example 2.1: CORE Q: Quantitative Reasoning

The Mathematical Sciences Department is the owner of nearly all Q courses in the general education program. This allowed the assessment plan for the Q area to be developed rapidly. Also, the quantitative nature of this general education category makes reviewing student work fairly straightforward.

The learning outcomes for the Q CORE area were updated (presented above), data sources were identified, and a schedule of assessment was created:

**2012 – 2013**
      M 149Q,  *Secrets of the Infinite*
      M 151Q,  *Precalculus*
      STAT 217Q, *Intermediate Statistical Concepts*
      PHL 236Q, *Logic*

**2013 – 2014**
      M 161Q,  *Survey of Calculus*
      M 165Q, *Calculus for Technology I*
      M 171Q,  *Calculus I*
      M 181Q,  *Honors Calculus I*

**2014 – 2015**
      M 121Q,  *College Algebra*
      STAT 216Q,  *Introduction to Statistics*
      STAT 226Q,  *Honors Introduction to Statistics*

**2015– 2016**
      M 166Q, *Calculus for Technology II*
      M 172Q, *Calculus II*
      M 182Q, *Honors Calculus II*

**2016 – 2017**
      M 145Q,  *Math for the Liberal Arts*
      M 273Q,  *Multivariable Calculus*
      M 283Q,  *Honors Multivariable Calculus*
      STAT 201Q,  *Statistics in the World*

**2017 – 2018**
      M 133Q,  *Geometry and Measurement for K-8 Teachers*
      M 147Q,  *Language of Mathematics*

Rubrics were built defining acceptable levels of student performance for each outcome:

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***Learning Outcome 1***:  *Interpret and draw inferences from mathematical or statistical models represented as formulas, graphs, or tables.*

Acceptable:

- The student demonstrates the ability to interpret the variables, parameters, and/or other specific information given in the model or statistical output.  The interpretation may contain minor flaws.

- The student uses the model to draw inferences about the situation being modeled in a manner that may contain some minor flaw(s).

- The interpretation(s) and/or inference(s) may be incomplete or inaccurate due to a minor flaw, such as a computational or copying error or mislabeling.

Not acceptable:

- The student makes no appropriate attempt to interpret the variables, parameters, estimates, and/or other specific information given in the model due to major conceptual misunderstandings.

- The student either attempts to use the model to make the required inference(s) and/or interpretation(s) but lacks a clear understanding of how to do so, or the student cannot use the model to make the required interpretation(s) or inference(s).

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***Learning Outcome 2****: represent mathematical or statistical information numerically and visually.*

Acceptable:

- The student understands most of the important aspects of the mathematical or statistical information and employs the appropriate representation(s) to display the information with possible minor flaws.

- The student correctly and accurately employs most of the appropriate and required aspects of the representation to display the information.  The representation may be lacking in a minor way.

- There may be misrepresentations of the information due to a minor computational/copying error.  The student uses mostly correct format, mathematical or statistical terminology, and/or language.

Not Acceptable:

- The student does not fully understand the important aspects of the mathematical or statistical information and employs the appropriate representation(s) to display the mathematical information with major conceptual flaws.

- The student may show some knowledge of how to employ most of the appropriate and required aspects of the representation to display the information, but the representation or interpretation is lacking in a major way.

- The representations may show some reasonable relation to the information but contain major flaws.  The student may use some correct format, mathematical terminology, and/or language, but the representation is incomplete in some major conceptual way.

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***Learning Outcome 3****:  Employ quantitative methods such as arithmetic, algebra, geometry, or statistical inference to solve problems.*

Acceptable:

- The student demonstrates some understanding of the problem and/or can identify specific arithmetic, algebraic, geometric or statistical method(s) needed to solve the problem.

- The student uses the method(s) to solve the problem.  The plan for the solution is clear, logical, and evident but may be lacking in a minor way such misreading the problem, or a copying error.

- The solution or interpretation is generally correct or well justified, but may contain minor flaws.

Not Acceptable:

- The student demonstrates at best a slight understanding of the problem. The student has difficulty identifying the specific arithmetic, algebraic, geometric or statistical method(s) needed to solve the problem.

- The student may attempt to use a method(s) that will solve the problem, but the method itself or the implementation of it is generally incorrect. The plan is not evident nor logical.

- The solution or interpretation may contain some correct aspects though there exist major conceptual or logical flaws.

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Data have been collected and scored against the rubrics. After the first round of assessment, minimal assessment results were provided:

- M 149Q: Learning Outcome 1 (88%), Learning Outcome 2 (82%), Learning Outcome 3 (91%)

- M 151Q: Learning Outcome 1 (74%), Learning Outcome 2 (57%), Learning Outcome 3 (75%)
  The threshold at the time of this assessment was 50%. See the assessment report posted on the web page for a discussion of why the evaluators believe the second learning outcome results are lower than expected. Based on this assessment, we are improving the assessment process to better align the questions used in the assessment with the stated learning outcomes. For this assessment questions were taken from the final exam that most closely aligned with the outcomes, but the questions were not written to explicitly assess the outcomes. This led to discussions with supervisors and instructors of courses to be assessed next, with the goal of making sure assessments in the future are performed with targeted questions. We believe this will lead to a more direct and appropriate assessment of the Q learning outcomes.

- STAT 217Q: Learning Outcome 1 (92%), Learning Outcome 2 (100%), Learning Outcome 3 (77%)

- PHL 236Q: Learning Outcome 1 (83%), Learning Outcome 2 (83%), Learning Outcome 3 (83%)

- M 181Q: Learning Outcome 1 (91%), Learning Outcome 2 (91 %), Learning Outcome 3 (82%)

As a result, the Q CORE Committee created a template for a more robust report which is now used. An example of the results using the new form is shown here:

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**Q-core Assessment Report**

Course: M 165 Q Semester: Spring 2014
Instructor(s) and/or supervisor: Lukas Geyer
Assessment done by (2 faculty members): Lukas Geyer and John Lund
Number of students in course: 60
Number of students assessed (at least 6): 44

Description of assignment, problems, and/or questions used for assessment:

All 44 final exams were assessed, out of two sections. The problems used to assess Learning Outcomes were problem 2 for outcome 1, problem 8 for outcome 2, and problem 5 for outcome 3. Problem 2 asked students to answer several questions about the derivative of a function whose graph was given. Problem 8 asked students to sketch two curves and find the area between them. Only the sketch was used to assess Learning Outcome 2. Problem 5 was a related rates "word problem".

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Learning Outcome 1: Interpret and draw inferences from mathematical or statistical models represented as formulas, graphs, or tables.

- Total number of assignments assessed: 44
- Number of student assignments demonstrating the learning outcome at an acceptable level, as defined in the Q-core Rationale and Assessment Plan : 38
- Proportion of assignments rated as "acceptable": 86%
- Is this over the specified threshold of 2/3? Yes
- Comments and ideas for better aligning the course or the assignments with the Q-core rationale: None
- Comments and ideas for improving the process of assessment: None

Learning Outcome 2: Represent mathematical or statistical information numerically and visually.

- Total number of assignments assessed: 44
- Number of assignments demonstrating the learning outcome at an acceptable level, as defined in the Q-core Rationale and Assessment Plan : 41
- Proportion of assignments rated as "acceptable": 93%
- Is this over the specified threshold of 2/3?
- Comments and ideas for better aligning the course or the assignments with the Q-core rationale: None
- Comments and ideas for improving the process of assessment: None

Learning Outcome 3: Employ quantitative methods such as arithmetic, algebra, geometry, or statistical inference to solve problems.

- Total number of assignments assessed: 44
- Number of assignments demonstrating the learning outcome at an acceptable level, as defined in the Q-core Rationale and Assessment Plan : 36
- Proportion of assignments rated as "acceptable": 82%
- Is this over the specified threshold of 2/3? Yes
- Comments and ideas for better aligning the course or the assignments with the Q-core rationale: None
- Comments and ideas for improving the process of assessment: None

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## Committee Review: Closing the Loop

While the Q CORE Committee still considers their assessment plan under development and characterizes their 2014 annual assessment report as a "progress report", they are clearly seeing results from their assessment process. Portions of the report are reproduced here. The full report is appended.

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**Report on Assessment of Core 2.0 Quantitative Reasoning Area**
Prepared by Megan Higgs on April 9, 2014

**I. Progress with Q assessment as of April, 2014**

We have implemented our complete assessment plan on 5 Q-designated courses (M 149Q Secrets of the Infinite, M 151Q Precalculus, STAT 217Q Intermediate Statistical Concepts, PHL 236Q Logic, and M 181Q Honors Calculus). The proportion of sampled students meeting the learning outcomes was over the stated threshold for all courses.

Despite meeting the goals for all outcomes and all courses, we made several changes to the assessment process based on results and feedback from faculty.

- We increased the threshold from 50% to 67% because we believed 50% was too low for the learning outcomes in the class. The 2/3 was chosen because this seems to be a realistic cutoff to capture the fact that up to 1/3 of assessed assignments may not meet learning outcomes simply because of student ability and motivation, rather than as an indication the course in not adequately meeting Q-core requirements.

- In response to the assessment of M 151, which had lower results than expected, the instructor of the course wrote a detailed description of the problems he saw with the assessment process, mainly that he relied on trying to align questions from the final exam to the outcomes rather than writing questions explicitly created to assess the outcomes. After this, we held a meeting of all instructors involved in teaching the Calculus series to discuss whether this would be a problem for their courses because they are up for assessment during Spring 2014. They feel confident they can appropriately assess the outcomes if they plan ahead and include questions that are easily tied to each learning outcome. The general opinion was that this planning ahead with assessment materials will make the assessment more meaningful and easier for the faculty members involved. I have sent multiple reminders this semester to the faculty in charge of the courses to be assessed and am hoping they will give an assignment or include a page on an exam or the final exam that will be specifically used for the assessment. This will also make it easier to save the student work used in the assessments if we should ever want to go back and review it at a later time. For example, it would be nice to have the work if substantial changes are made the course and we want to compare responses from students before and after the work. I am encouraging instructors to save as many assignments as possible even if they are not randomly selected to be included in the formal Core 2.0 assessment. If it is available on one page it should be easy to scan the papers and save them electronically.

- We also created a template to make it easier for faculty members involved in the assessment process to easily enter the information. The template includes specific places to provide ideas about how the course and/or assignments can be better aligned with the Q Core 2.0 rationale, and/or how the assessment plan can be improved. We hope this will encourage those involved in assessment to think about "closing the loop."

- Faculty members instructing the courses have been integrally involved in the assessment process so we are sure the information about the assessment is being communicating to the instructors.
- We also created a space on the Department of Mathematical Sciences website to store the results of all of our assessments, both Core 2.0 and undergraduate programs. The results for 2012-2013 are on the webpage and we will add the results from 2013-2014 after assessment is completed for the Spring 2014 semester.

  http://www.math.montana.edu/reports.html

- The Department of Mathematical Sciences also recently created a new service role of Assessment Coordinator. The role of this person will be to send emails to instructors with the relevant assessment information each semester so that assessment does not fall through the cracks because of busy schedules.

- We also found a mistake in the list of classes included in the assessment schedule and recently updated that.

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A significant result of the assessment process is listed in the first bullet point. There was some concern among the administrators responsible for assessment when the Q CORE Committee decided to set the threshold response at "50% acceptable or higher." But, believing that the continuous improvement nature of the assessment process should demonstrate to the committee members that their threshold was too low, we allowed the process to work. We were pleased to see that the threshold has now been raised to "2/3 acceptable or higher."

## Example 2.2: CORE US: University Seminar

The University Seminar area of CORE 2.0 includes numerous courses taught by various departments. As such, developing a single assessment plan was a significant undertaking. In 2011-12 the CORE US Committee was expanded to include the directors or instructors for each US course. By May 2013 they had agreed upon a set of program learning outcomes that would be used with all US courses. These updated learning outcomes for US CORE courses were presented above.

The CORE US Committee then developed an assessment plan for University Seminar courses, including the following elements (summarized here, full assessment plan appended):

- Student Learning Outcomes
- Assessment Schedule – after a startup period (one year), all US courses will be sampled every fall semester. One learning outcome will be assessed each year on a three-year cycle.
- Sample Size and Selection of Student Work

  *We will evaluate student work from 5-10% of the students enrolled in each US core offering. Directors will review the course syllabus and select appropriate assignments to sample for each SLO. Directors will randomly select students from multiple sections (when possible) and will collect the student work from instructors. Directors will alternate instructors whose students are selected, and directors will not rely upon or favor any instructors over others.*

- Assessment Process

  *Each seminar will select their assessment team comprised of at least two individuals from their leadership team and current seminar faculty. In instances where the seminar director is the only faculty member teaching the course, outside evaluators will participate in that course's assessment. Otherwise, the use of outside evaluators will be at the discretion of the seminar directors.*

  *Evaluators will score student work using the common rubrics created by the seminar directors. Whenever possible, evaluators will not score work from their own section. After the assessment is complete, the director of each seminar will create a summary document that details the assessment results for their courses. These results will be shared with the seminar directors group.*

- Post Assessment

  *Seminar directors will meet to review and discuss the assessment results at the end of each assessment cycle (once a year). The seminar directors will invite the Associate Provost to join this discussion and a full summary of the assessment results will be shared.*

- Threshold

  *Each course must meet a minimum threshold. 60% of student work from each course should be at the level of "meets expectations."*

  *If a course fails to meet the 60% threshold, the following steps will be taken:*

  1. *Courses with a score below 60% will review both their course and the assessment process and will bring their questions and potential solutions to discuss with the seminar committee.*
  2. *The course will be re-assessed in the following semester (or during the next offering).*
  3. *If the course does not meet the threshold after a second assessment, the seminar directors will discuss the assessment results and determine next steps to improve the course in consultation with the Associate Provost.*

- Assessment Report

  *After the individual course assessments have been completed, a representative (rotated throughout the seminar directors group annually) will compile the individual assessment reports and create a summary report to share with the Associate Vice Provost. The report will include a narrative that details the assessment results, provides a summary of each course's scores, sample rubrics, and guidelines about necessary next steps if courses do not meet the threshold.*

**Data Collection and Assessment**

Ten of the 12 US CORE courses have been included in the scheduled assessment of learning outcome 1: Students will demonstrate critical thinking skills. The assessment for the other two US courses is scheduled to be completed in Fall 2014.

- AGED 140US     Leadership Development for Agriculture
- BGEN 194US     Seminar
- CLS 101US     Knowledge and Community
- CLS 201US     Knowledge and Community
- COLS 101US     First-Year Seminar
- COM 110US     Public Communication
- EDU 101US     Teaching and Learning
- LS 101US     Ways of Knowing
- US 101US     First-Year Seminar
- US 121US     Education, Social Issues and the Digital Age
- HONR 201     Texts and Critics (to be completed in Fall 2014)
- HONR 301     Texts and Critics (to be completed in Fall 2014)

Selected assignments from each course were scored using a common rubric. A report on the assessment results from each course was returned to the US CORE Committee (*aka* US Course Directors). These individual assessment reports often included recommendations for changes to the individual course. As an example, the report for the Fall 2013 offering of US 121US (Note: this somewhat confusing course designation can be interpreted as follows: US rubric = University Studies, Course number = 121, CORE designation US = University Seminar). The complete report is appended.

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**Fall 2013 US 101US Critical Thinking Student Learning Outcome Assessment**

Process:  The Seminar Director and Assistant Director selected an essay assignment that was completed in mid-November for the critical thinking learning outcome assessment. A copy of the assignment is attached to this summary. To hit the assessment target of 10% of course enrollment, directors randomly selected 72 students from 12 different sections.

The US 101US enrollment for Fall 2013 was approximately 670 students.

Each essay was read by two evaluators and was scored using the common US Core CT rubric. Essays were read and scored individually. Evaluators then gathered to discuss differences in their evaluation and scoring. During the discussion, evaluators also confirmed their definitions of the criteria and clarified how they

scored items when student work fell within two levels of achievement. (e.g., student used multiple relevant sources, but did not cite the sources properly).

Evaluators: The evaluation team consisted of the seminar leaders: Emily Edwards, Ryan Storment, and Margaret Konkel, and seven current seminar instructors: Jim Thull, Shari Curtis, Deborah Blanchard, Sara Browne, Amanda Bitz, Megan Swanson, and Steve Guettermann. All student work was pulled from instructors not on the evaluation team.

Scoring the Assessment: To facilitate the scoring of assignments, each level of achievement was given a numerical value: 1 = below expectations, 2 = meets expectations, and 3 = above expectations. Because two evaluators scored each assignment, we averaged the evaluator scores to assign one point value to each criterion.

When evaluator scores varied, the evaluators discussed the discrepancies. When evaluators reached consensus, the score was updated to reflect the outcome of the evaluators' discussion. If a student earned both a 2 and 3 for one area, the average score of 2.5 was recorded.

1 or 1.5 = Below Expectations
2 or 2.5 = Meets Expectations
3 = Exceeds Expectations

Summary of Scores: The following table represents the percentage of individual essays that fell within each level of achievement.

| Criteria | Above Expectations | Meets Expectations | Below Expectations |
|---|---|---|---|
| Claim | 11% | 63.60% | 25% |
| Support | 34.70% | 47.20% | 18% |
| Alternative Perspective | 20.80% | 62.50% | 16.50% |
| Language | 27.70% | 70.80% | 1.3% |

Recommendations and Considerations:

1. Meet with evaluators prior to conducting the assessment to discuss the assignment and the common rubric and to share examples of student work that reflects each level of achievement for each criterion.
2. Share all Core student learning outcome rubrics with instructors at the beginning of the semester. Discuss guiding definitions and achievement markers for all criteria by reviewing examples of student work.
3. In conjunction with the previous discussion, discuss approaches to help students achieve at a higher level by more fully incorporating required elements. For example, students might include support and alternative perspectives, but not many students fully incorporated these items into their assignment. While students would use outside support and acknowledge alternative perspectives, they often didn't discuss the relevance of these items. At times these elements would feel as though they were inserted into the argument, without being fully connected to the narrative.
4. The initial assignment selected for the assessment was an essay that asked students to define and connect their personal philosophy to the philosophies of other authors. Such personal reflection allowed students to make some subjective arguments. For future assessments, it is recommended that assignments that allow for less personal reflection be selected. The US seminar directors will consider

evaluating an additional assignment in Spring 2014 alongside the Critical Thinking rubric to ensure that students are achieving this outcome as indicated in our initial assessment.

5. While the US 101US course offers common rubrics to both students and instructors for oral presentations, leading discussion, and writing essays, we had not previously shared a common rubric for critical thinking. Reviewing our course rubrics and aligning them with the common US Core rubrics should be considered.

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**Overall Assessment: Closing the Loop**

The US CORE Committee reviewed all of the course assessment reports and provided an overall assessment.

All courses that completed the assessment, with two exceptions, met the established threshold requirement of 60% 'Meets Expectations'. The courses that fell short, COLS 101US and US 121US, have listed next steps for addressing their concerns. Even those courses that met the threshold have identified opportunities where they can help their students strengthen particular elements of critical thinking. In addition to reviewing how we engage our students in critical thinking, many departments made recommendations for their own assessment process and others made recommendations for the Seminar Director's Committee to consider adopting across all sections. While these are listed on the individual reports a sample includes: sharing the common rubric with all course instructors; sharing and discussing samples of student work representative of each level of achievement; assigning common number values to each level of achievement; identifying and utilizing an assessment report template to streamline and simplify the final report.

Several courses (AGED 140; CLS 101 and 201; COM 110; and LS 101) piloted our initial assessment in Spring 2013. Through the work of these assessment teams, we recognized the challenges of applying a single rubric to our very different courses. The work of the initial assessment teams proved helpful in identifying necessary changes to the rubric. Such conversations have also been fruitful in helping committee members collaborate with and learn from colleagues in other departments.

While two courses HONR 201US and HONR 301US did not complete the fall assessment, this department will complete both the critical thinking assessment and the oral communication assessment during Fall 2014 under the leadership of Ann Ellsworth.

The assessment of US CORE Courses is on-track with assessment of the second learning outcome, "Students will prepare and deliver an effective oral presentation," scheduled for Fall 2014.

# Example 3: Program Assessment

Program assessment appears in the strategic plan in Objective L.1 and Metric L.1.1.

Objective L.1: Assess, and improve where needed, student learning of critical knowledge and skills.

Metric L.1.1: By 2019, MSU will achieve targets for mastery of disciplinary knowledge as developed in departmental learning assessment plans.

## Current Situation

The implementation of program assessment plans at Montana State University varies widely by discipline. Professional programs with external accreditation such as Engineering, Business, Education, Nursing, and Nutrition have well-established assessment programs and a long history of outcomes assessment. Areas without external programmatic accreditation are well behind and have been slow to develop assessment plans. In some cases, earlier efforts to comply with accreditation requirements in this area have actually impeded our progress.

Departmental Assessment Plans have been on file since 2004, but many of these plans were developed with little understanding of how to do outcomes assessment, and the institution's emphasis was on departmental assessment plans rather than program assessment plans. Substantial rework has been required to develop workable assessment plans for all of our programs. Significant progress has been made towards our goal of redeveloping program assessment plans for all undergraduate majors, but many minors and certificate programs still need assessment plans.

### Undergraduate Majors

A few years ago the College of Letters and Science was identified as an area where significant development work was required in the area of program outcomes assessment. In 2011-12 the Associate Dean of that college attempted to have each of her departments develop assessment plans for all undergraduate programs. In that year the college moved from effectively zero undergraduate programs having required assessment elements (stated outcomes, identified data sources, timetable) to 16 programs (89%) with those elements in place. The majority of the programs have followed their assessment plans by (1) collecting outcomes data, (2) assessing it, and (3) reporting back on how they have used assessment results to "close the loop" by improving their programs. The efforts of the faculty in the Sociology program will be used as one of the examples of assessment success in this report.

There is a similar push currently underway in the College of Agriculture to add required elements to assessment plans. Specifically, many of the assessment plans in the College of Agriculture include program learning outcomes and identified data sources, but fail to include a schedule for when each outcome will be assessed. We anticipate having these assessment plans updated by Fall 2014.

After the concerted push in the College of Letters and Sciences, 42 of 56 undergraduate majors at Montana State University now have assessment plans that include stated program outcomes, identified data sources, and a schedule for assessment of each outcome. When the assessment plans in the College of Agriculture are completed, the university will have 53 of 56 undergraduate majors in compliance. The three remaining programs outside of the College of Agriculture will also be asked to complete assessment plans by Fall 2014.

### Graduate Majors

As of the beginning of Summer 2014, program assessment plans for graduate majors were largely non-existent: only 11 of 80 graduate programs had complete assessment plans on file.  However, the majority of graduate programs are thesis-based and require students to complete a comprehensive examination and/or a thesis defense with a report submitted to the Graduate School. Many other

programs require students to prepare a professional paper that can be used to demonstrate mastery of content as well as communication skills.

In practice, there is a long history of assessment in place in these graduate programs, and we simply needed to align existing assessment activities with program assessment. In Summer 2014 the Graduate School created a master assessment plan for all graduate programs using the following program learning outcomes (from Oregon State University):

For masters' students:

a. Conduct research or produce some other form of creative work, and
b. Demonstrate mastery of subject material, and
c. Be able to conduct scholarly or professional activities in an ethical manner.

For doctoral students:

a. produce and defend an original significant contribution to knowledge;
b. demonstrate mastery of subject material; and
c. be able to conduct scholarly activities in an ethical manner.

All graduate programs will now be required to provide an annual assessment report based on these learning outcomes unless a separate program assessment plan has been filed. (The MFA program in the School of Film and Photography, for example, has been using an assessment plan developed prior to the implementation of the global graduate assessment plan. They will be allowed to continue using that assessment plan.)

# Example 3.1: Program Assessment in Sociology

The Sociology program was selected as an example of a program that significantly revised their assessment program in 2011, but which is now closing the loop on program assessment for their program.

The information presented here is from the Sociology program's 2013 annual assessment report. The 2014 annual assessment report is not due until Fall 2014.

- The 2013 assessment report was submitted on June 6, 2013 [appended]
- The Sociology faculty reviewed the assessment reports during the 2012-13 academic year.
- The assessment reports are based on data collected during the 2011-12 academic year.

**Program Learning Outcomes**

The Sociology faculty identified the following program learning outcomes for their program:

1. **Sociology as a Discipline.** Our students will demonstrate an understanding of the discipline of sociology and its role in contributing to our understanding of society and changes in society.

2. **Sociological Concepts.** Our students will demonstrate a knowledge, comprehension, and relevance of core sociological concepts.
3. **Sociological Theories.** Our students will demonstrate an understanding of the role of theory in sociology.
4. **Sociological Application.** Our students will formulate research questions based on critical readings and understandings of sociological research.
5. **Oral Communication.** Our students will demonstrate the ability to present materially orally in an organized and effective manner.
6. **Written Communication.** Our students will demonstrate appropriate writing practices and formats and effective written communication and editing skills.
7. **Empiricism.** Our students will demonstrate an understanding of the roles and of evidence in qualitative and quantitative methods.

**Identified Data Sources and Schedule for Assessment**

The faculty prepared a chart indicating the sources of data that would be collected for assessment, and the semester when each data set would be collected and assessed.

| ASSESSMENT PLANNING CHART. PROGRAM: Sociology | | | | | |
|---|---|---|---|---|---|
| | *Assessment Year and Targeted Courses* | | | | |
| LEARNING OUTCOME | 2011–12 | 2012–13 | 2013–14 | 2014–15 | *Assessment Targets* |
| *1: Sociology as a Discipline* | | SOCI 414 | | | Essay Question |
| *2: Sociological Concepts* | | | SOCI 499 | | Final Project & Poster |
| *3: Sociological Theories* | | SOCI 455 | | | Essay Questions |
| *4: Sociological Application* | | | SOCI 318 | | Final Project |
| *5: Oral Communication* | SOCI 470 | | | | Discussion Leader |
| *6: Written Communication* | SOCI 499 | | | SOCI 499 | Final Project |
| *7: Empiricism* | | | | SOCI 318 | Essay Question |

Based on the assessment schedule, assignments in two courses were targeted for review in 2011-12:

- Discussion Leader Assignment in SOCI 470
- Final Project and Poster in SOCI 499 (a capstone course)

**Data Collection and Scoring**

The identified assignments were collected and a randomly selected subset was scored by either two members of the faculty or, in one case, by the instructor using a prepared scoring rubric. A summary report for the faculty was prepared. Those summaries are reported here:

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**SOCI499: Senior Capstone**
**Professor: Leah Schmalzbauer**

Assessment by: Dr. Tami Eitle and Danielle Hidalgo
Learning Outcome: Written Communication

Six (6) papers were randomly selected for assessment of student learning outcomes: two A papers, two B papers, and 2 C or D papers from each capstone section (12 papers total).

Overall our assessments of the papers were very similar. We had a discussion based on our assessments and agreed upon the following:

Students who perform well (at the A level) in the capstone are doing really superior work. They show an understanding of the kinds of questions that sociology can address, are able to critically read and assess prior research, are knowledgeable enough to choose appropriate research methods given their research topics and questions, and provide informed sociological interpretation of their results. In addition they write very well. In fact some of these papers we felt were of such high quality that they could be prepared for presentation at professional meetings along side the work of graduate students.

Students who produced B level papers were more of a mixed group. Two of the papers were similar in many respects to the A papers, but were not as well written and showed less of a mastery of the literature. The rest of the papers were just sloppy in many respects: For example, more summary than critical discussion of prior research, not enough consideration given to the appropriateness of the method, less independent interpretation in their discussion of findings. These papers also depended more on direct quotes rather than describing prior research in their own words.

The C (or in one case D) papers were altogether a lot more confused than the other papers. The literature reviews were often disorganized and not focused, the research questions in at least half the cases were not really sociological, the research methods were not necessarily appropriate for the research questions, and the papers trialed off into narrative way too often for a formal research paper. These students often still do not understand what data are (confusing data with research articles that they find in the library system), their proposed studies or analysis was not at the same level of analysis as their research question suggested, and they had a tendency to want to ask their research questions to their subjects. Example: Research Questions: Why do police officers have higher divorce rates compared with many other professionals? Proposed Methods: Interviewing police officers and asking them why police officers have higher divorce rates. Finally there is a marked and significant drop in the quality of the writing in the C papers compared to any of the other papers.

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**SOCI470: Environmental Sociology**
**Professor: Scott Myers**

Assessment by: Dr. Scott Myers
Learning Outcome: Oral Communication

This learning outcome was assessed by the attached rubric [shown below], and all students enrolled in the class (n = 31) were scored according to the rubric. The readings for the course were comprised solely of peer-reviewed journal articles and published books by well-regarded publishing houses. The course was divided into five different topical sections, and each student was required to be a discussion leader for one of the sections. On average, each section had six students as discussion leaders, and each section lasted

about three weeks. The students were provided with extensive guidelines on how to lead discussions, and these guidelines were nearly identical in scope to the criterion in the attached rubric.

Of the 31 students, 30 of them received a rubric score at the minimally acceptable level. This indicates that these students met the expectations for this learning outcome. The one student who did not score as minimally acceptable did so because of a lack of preparation and attendance. Of the 30 who met the minimal threshold, the distribution of scores was:

- 5 scored as Exceptional
- 12 scored as Exceeds Expectations
- 8 scored as Acceptable
- 5 scored as Minimally Acceptable.

Across the six criterion categories in the rubric, students excelled most in the Responding to Students and Atmosphere categories. On the other hand, the discussion leaders tended to struggle most with Question Types and Closure. In fact, only a few students were able to successfully close out a class discussion properly due, in part, because of the types of questions they used to frame the discussions. Interestingly, there appeared to be a peer-learning effect occurring throughout the semester. That is, the quality of the discussions and discussion leaders improved with each subsequent section, perhaps indicating that the non-discussion leaders learned about oral communication by observing the discussion leaders. These students then applied these lessons during their tenure as discussion leader.

Most of the students came well prepared and excited to lead the discussions, and most of the students who were not discussion leaders were equally excited for the challenge. The main hurdle for both groups of students was perhaps the level of reading required. It appeared that the students struggled with some of the academic readings, especially when these readings were highly theoretical or contained inferential statistics.

While not part of this learning outcome, the incorporation of this activity into the course appeared to have an unanticipated outcome. Namely, the quality of the in-class written exams was of very high quality.

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**Discussion Leader / Oral Communication**
**Scoring Rubric**
SOCI470 – Environmental
Sociology Spring 2011

Discussion Leader: _____      Evaluator: _____

| Criterion | Exceptional to Good (4 – 5 points) | Fair to Acceptable (2 – 3 points) | Poor to Unacceptable (0 – 1 points) | SCORE |
|---|---|---|---|---|
| **Initiation of Discussion** | Leader begins with a short, concise statement of the problem being discussed; avoids an introductory lecture. | Leader begins with rambling problem statement; has a tendency to lecture at the outset. | Leader begins discussion with a long lecture, and to some extents tends to achieve the goal by self. | |
| **Responding to Students** | Leader responds well to students who provide input; acknowledges contributions regularly and thanks with sincerity; asks appropriate follow-up questions. | Leader non-uniformly acknowledges contributions provided by students, or uses only such statements as okay, yes, etc. Rarely asks follow-up questions. | Leader fails to acknowledge contributions made by students. Does not ask follow-up questions to obtain required clarification if necessary. | |

| | | | | |
|---|---|---|---|---|
| **Question Types** | Leader uses a wide variety of question types; uses questions that directly bear on the expressed goal; avoids rhetorical questions; manages to have students think and talk critically about topic. | Leader uses a limited variety of question types; limited applicability of questions to goal attainment; some use of rhetorical questions. | Leader uses a very limited variety of question types; some showing a degree of inapplicability to goal attainment; does not achieve any reasonable depth of discussion. | |
| **Question Shifting** | Leader generally begins discussion with divergent questions and moves toward convergent questions near the end of the discussion; makes appropriate digressions if necessary. | Leader's choice of questions somewhat erratic, but tend to move from divergent to convergent as discussion continues. | Leader does not exhibit any concern for type of questions asked either at beginning or conclusion. Questions bear directly on subject matter in a lock-step fashion. | |
| **Atmosphere** | Leader maintains a friendly, collaborative atmosphere; all students appear free to participate without recrimination. | Leader tends to maintain a reasonable atmosphere for discussion, but sometimes fails to control criticisms or witticisms of others. | Leader fails to maintain atmosphere conducive to successful discussion; statements or witticisms of others offend some students. | |
| **Closure** | Leader helps students to arrive at a meaningful conclusion to the discussion, restating the original goal, and having students explain its solution or achievement; uses appropriate questioning to ensure attainment of goal. | Leader tends to do his or her own summary; concludes discussion early and quickly due to a lack of time; does a minimal job to determine whether or not educational goal has been attained. | Leader does not achieve any form of closure, or does so very inadequately; runs out of time; does not assess to determine whether or not students have achieved educational goal. | |
| **Adapted from: Physics Teacher Education Program Illinois State University** | | | **TOTAL:** | **/30** |

| INDICATORS OF ACHIEVEMENT | RANGE* |
|---|---|
| EXCEPTIONAL | 27 – 30 |
| EXCEEDS EXPECTATIONS | 23 – 26 |
| ACCEPTABLE | 12 – 22 |
| MINIMALLY ACCEPTABLE | 6 – 11 |
| UNACCAPTABLE | 5 OR LESS |

*Work must be judged as "Minimally Acceptable" to meet the expectations for this learning outcome.

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## Faculty Assessment: Closing the Loop

The individual assessment summaries were reviewed and discussed by the faculty. A summary of the faculty discussion was submitted as part of the program's annual assessment report.

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**Learning Outcomes Summary for Spring 2012**

**SOCIOLOGY FACULTY RESPONSE**

The two courses assessed for the 2011-2012 cycle were SOCI499: Senior Capstone and SOCI470: Environmental Sociology. SOCI499 assessed the learning outcome of written communication and SOCI470 assessed the learning outcome of oral communication. The quality of the work of the students in both classes were mixed, but, on average, met the expectations for each learning outcome.

For SOCI499, the evaluation of the C and D paper group revealed that these students struggled for two different reasons: (1) many of them are just disinterested, unmotivated, and want to do only enough to get by, but (2) among this group are also students who really are just getting by and they are working at it but are just generally borderline C students. The recommendation of the Sociology faculty is that it may worthwhile to express to faculty and particularly faculty teaching research methods about the confusion in students minds about data and research articles being the same thing. Further, it would benefit our students to have to think about unit of analysis as they read through the research that we all assign in our classes.  For writing skills, we believe it would greatly benefit our students and their learning if they took at least one English comp class in addition to the W Core requirement. Even among the A paper group, these stronger students might improve their writing with more practice.

For SOCI470, the Sociology faculty saw similar themes as that in SOCI499. Namely, most students struggle with original journal articles, especially those that are empirically and statistically driven. Yet, the faculty still regarded the Discussion Leader component as an integral aspect of student learning—one that goes far in achieving active and student-centered learning principles. Much like the above recommendation for an additional writing course, the faculty believe that our majors would benefit from a public speaking course, perhaps advising them to take COM110US to fulfill the CORE 2.0 requirement.

**Curricular changes:** None recommended at this point, but the faculty will continue to discuss the possibility of requiring our majors to take COM110US

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The 2013 annual assessment report summarizes the results of this program's first year of collecting data and assessing student performance. No curriculum changes were made as a result of the first-year assessments, but the assessment process has made the faculty aware of potential deficiencies which are now being monitored.

## Example 3.2: Program Assessment in Film and Photography

The College of Arts and Architecture is an area that has made good progress on assessment, with 5 of 6 undergraduate degree programs having assessment plans with stated outcomes, identified data sources, and a specified timetable for completing assessments. This is perhaps not surprising since the College actually has a long history of using assessment (typically portfolios) to monitor student performance and progress towards degrees. Adapting the ongoing assessment processes for program review purposes was fairly straightforward.

The School of Film and Photography (SFP) has been selected as an example because they have had to address some unique challenges in developing an assessment plan. While information on the BA program is presented here, the faculty is actively involved in assessing both their BA and MFA programs. Complete assessment plans and reports for both the BA and MFA programs are appended.

**One Degree, Multiple Curricula**

The SFP offers a single BA degree in Film and Photography, using options to allow students to focus in either area. But they chose to adopt uniform program outcomes and assess the degree rather than each option. This has assisted the School in increasing the emphasis on integration, focusing on the commonalities of the two options rather than the differences. Because of the differences in curricula, the options are sampled separately, but the data are scored using the same rubrics. According to the SFP assessment plan:

> Assessment will employ the same rubrics, based on shared Program Outcomes, in both options, however, so that the data can be compared and collated to assess the overall effectiveness of the school and the uniformity of the student learning experience.

**Dealing with Electives**

The program uses electives more than specific course requirements in the upper division courses. This approach can complicate the assessment process since the students do not all have the same academic experience. The faculty in SFP addressed this by establishing uniform standards/expectations for the upper division courses.

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The new curricula in Film and Photography (adopted 2011) rely more on a menu of electives than on specific requirements in upper division courses. In order to insure consistency in outcomes and to facilitate assessment, the School of Film and Photography will adopt the following strategies for upper division elective courses:

- We will adopt uniform standards/expectations for 300- and 400-level "studies" courses (history, theory, criticism), respectively, in terms of reading, writing, and research expectations, with mastery of critical thinking, original research, and written expression expected in the 400-level courses. We will apply the same expectations and standards to any changes in studies course menu.
- We may consider making one 300-level studies course a pre-requisite for any 400-level studies course, in order to provide the development necessary to attain 400-level mastery.
- We may require that students take at least one 400-level studies elective in order to insure that all students reach a level where mastery of relevant outcomes may be consistently assessed. Currently, faculty vacancy limits our ability to do so.
- We will also adopt uniform standards/expectations for all recurring, 300-level "production" electives to address the aesthetic context of the specific skill area, including some written analysis, (some research), as well as high-evel developmental expectations for technical accomplishment in the specific skill area.
- We will review learning outcomes of all 300- and 400-level elective courses for alignment with the uniform Program Outcomes.

- With uniform expectations, we will develop two standard rubrics for 300- and 400-level studies courses respectively, and one standard rubric for all 300-level production electives. Elective vs. required courses assumes that the specific knowledge content is less relevant than the framework of knowledge acquisition and demonstration (multiple paths towards the same end), and assessment rubrics should be based on this. One goal of this assessment strategy will be to insure that all elective classes conform to the uniform expectations.
- Because electives will rarely enroll all majors, we will assume that any elective class represents a "sample" of student work for the purpose of assessment, and we will rotate assessment among electives to insure consistency in meeting Program Outcomes.

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The items in red are shown as presented in the SFP assessment plan. That is, these are open issues that the faculty is monitoring and will be deciding upon as a result of the assessment process.

**Curriculum Mapping**

The assessment materials provided to departments encourages faculty to develop a curriculum map as part of the process of developing an assessment plan. Faculty are encouraged to mark courses are designed to introduce (I) student to concepts, allow student to develop (D) proficiency, or expect students to demonstrate mastery (M). The SFP curriculum map helped the faculty understand their curriculum and determine how to address the issue of electives in their curriculum. The curriculum map below is for the Film Option. A similar curriculum map was developed for the Photo Option.

| RQ | | Credits | Outcomes | | | | |
|----|----|---------|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 |
| * | FILM 100 Introduction to Film and Photography | 3 | | I | I | | I |
| a | FILM 104 Modes of Screen Drama | 3 | | I | | | I |
| * | FILM 106 Film in America | 3 | | I | | | I |
| * | FILM 112 Aesthetics of Film Production I | 3 | I | | I | I | |
| * | FILM 212 Aesthetics of Film Production II | 4 | I | | I | D | |
| * | FILM 251 Scriptwriting | 3 | I | | I | D | I |
| c | FILM 253 Television Production | 3 | I | | | | |
| * | FILM 254 Acting for Film | 3 | I | | | I | I |
| a | FILM 260 International Film and Television | 3 | | I | I | | I |
| b | THTR 304 Theatre Production | 4 | D | | D | D | D |
| c | FILM 333 Production Management | 3 | D | | D | D | D |
| c | FILM 351 Advanced Script Writing | 3 | D | | D | D | D |
| c | FILM 352 Editing | 3 | D | I | D | D | |
| c | FILM 354 Lighting | 3 | D | | D | D | |
| c | FILM 355 Cinematography | 3 | D | | | D | |
| c | FILM 356 Production Design | 3 | D | D | D | D | D |
| c | FILM 357 Directing | 3 | D | | | D | |
| c | FILM 359 Sound Design | 3 | D | | | D | |
| b | FILM 371 Non--Fiction Film Production | 4 | D | | D | D | D |
| b | FILM 372 Fiction Film Production | 4 | D | | D | D | D |
| a | FILM 381 Studies in the Film | 3 | | D | D | | D |
| a | FILM 449 Film and Documentary Theory | 3 | | M | M | | M |
| a | FILM 481 Advanced Studies in Film | 3 | | M | M | | M |
| c | FILM 493 Professional Perspectives ---- L.A. Field Trip | 3 | | | D | | |
| c | FILM 494 Seminar/Workshop | v | | | | | |
| * | FILM 499 Senior Production | 5 | M | M | M | M | M |

Notes:
   a. Three upper-division film or photography studies courses required, including non-departmental courses
   b. Two of these three production courses are required
   c. Students must take four SFP electives

## Assessment Report

The SFP turned in their annual assessment report for 2013-14 including both the BA and MFA assessment results. The complete assessment report is appended, but only the BA portion is included here.

*Note: This example also illustrates the use of the new template for assessment reports.*

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**Annual Assessment Report**

Academic Year:    2013-2014
Department:       School of Film and Photography
Program(s):       BA in Film and Photography

**1. What Was Done**

According to our assessment plan, we evaluated learning outcomes 2 and 5 this year in selected courses in the Undergraduate curriculum.

**2. What Data Were Collected**

Fall 2013

2. The final assignment was collected from PHOT 374, PHOT 401, FILM 351, and FILM 372 in the undergraduate curriculum and scored using our "Production Assignment" rubric template.

5. The final assignment was collected from PHOT 374, PHOT 401, FILM 351, and FILM 372 and scored according to the "Production Assignment" rubric.

Spring 2014

2. The final assignment was collected in PHOT 373, and FILM 371, and scored according to our "Production Assignment" rubric.

5. The final assignment was collected from FILM 381 and scored according to our "Written assignment" rubric.

**3. What Was Learned**

2. A majority (more than 75%) of our students "understand and appreciate the history and criticism of photography and/or film," although the fall students fell slightly below this threshold.

5. Students demonstrated an ability to "employ critical thinking skills informed by integrating areas of knowledge outside their chosen discipline" with a total average of 66% of those enrolled, with the spring classes again outpacing the fall with scores that met or surpassed out threshold of 75%.

**4. How We Responded**

2. We are revising our rubrics for next year to allow us to pinpoint specific weaknesses more precisely and asking instructors to include the rubrics in selected assignments.

5. To create a more consistent outcome among the students, we are making "critical thinking" a production imperative beginning with freshman classes.

*Note: Results of the assessment will be shared with faculty at the AY 2014-15 Startup Meeting on August 21, 2014.*

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**Assessment Responses – Closing the Loop**

In this example, the SFP faculty identified that the students, on average, were meeting the target of 75% or higher scoring acceptable or higher on each category of the scoring rubric. However, they found inconsistencies between semester offerings and are planning to improve their scoring rubrics to allow them to pinpoint problems so that they can better respond. The faculty is also considering making critical thinking a "production imperative" in the future. This will be discussed by the faculty at the beginning of the next school year.

# Example 4: Discovery – Building the Doctoral Program

The final meeting of the Faculty Senate in May 2013 was devoted to allowing faculty to provide input on the Institution's needs and priorities. What emerged as the top priority from that meeting was the desire to see MSU retain its Carnegie ranking as a Very High Research institution. While we do not control the ranking process, we can take steps to improve our performance in areas that are expected to be part of the Carnegie Foundation's ranking process. One area that is considered essential is to increase the number of doctoral awards granted annually, especially PhD awards.

These goals appear in the strategic plan in Objectives D.1 and D.3, and Metrics D.1.3, D.3.2 and D.3.3.

Objective D.1: Elevate the research excellence and recognition of MSU faculty.

Metric D.1.3: By 2019, MSU will improve its rank among Carnegie Classified Research Universities—Very High Research Activity (RU/ VH) institutions on four measures: STEM R&D expenditures (current rank 94); non-STEM R&D expenditures (rank 92); number of science and engineering research staff (rank 96); and doctoral conferrals (rank 106).
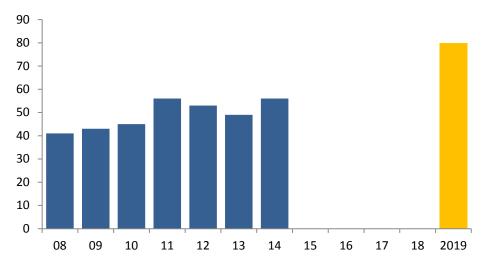
Objective D.3: Expand the scale, breadth and quality of doctoral education.

Metric D.3.2: The graduate student population will increase 20 percent to approximately 2,350 by 2019, with an emphasis on increasing doctoral student enrollment.

Metric D.3.3: By 2019, the number of graduate degrees awarded will increase from 548 to 625 per year. Science, technology, engineering and mathematics (STEM) master's and doctoral degrees will increase to 325. All doctoral degrees awarded will increase from 56 to 80 per year.

One strategy employed to address these objectives was the establishment of the PhD Enhancement Fund in FY13.[4] The Fund provides $216,000 in base funding to provide stipend support of $18,000 for 12 entering PhD students each year. These students also receive full tuition waivers. Awards are determined by the Graduate School which seeks to use the funds to strengthen doctoral programs. These enhancement funds are intended as incentive funds, with students moved to grant funding after the first year. The availability of these funds makes a huge difference to faculty members who have been awarded a three-year grant and are nervous about taking on a PhD student that will likely need four years to complete his or her program. The PhD Enhancement Fund in designed to encourage faculty researchers who might opt for a master's candidate to take on a PhD candidate.
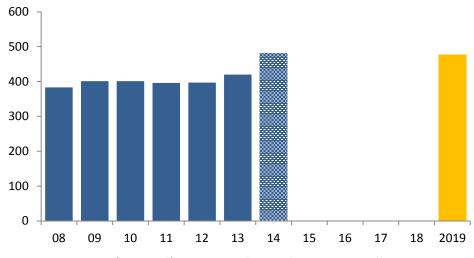
While it will be several years before we see PhD Enhancement Fund students graduating, we are already seeing significant progress towards our goal of increasing the number of doctoral degrees awarded. Increasing the number of PhD candidates in the pipeline will help us meet this strategic objective.



*Metric D.3.3: Doctoral Degrees Awarded*

Source: Office of Planning and Analysis

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[4] In the first year of the program, a large number of highly qualified candidates were identified, so an additional six awards were made using one-time-only funding.

*Metric D.3.2 (partial): Doctoral Headcount Enrollment*

Source: Office of Planning and Analysis (2014 data is currently a projected value, actual value available mid-September)

## Example 5: Engagement – Revamping the Carter County Museum, and more

Six students from Montana State University spent the summer of 2013 revamping the Carter County Museum in Ekalaka, Montana. That program not only brought MSU students to rural Montana to put their skills and abilities to work in a community, but it also launched a larger program called project SCOPE (Student Community Outreach ProjEct) which intends to match more students and communities on projects that combine outreach and student research.

The related objectives and metrics in the Strategic Plan include Objectives E.1 and E.3, and Metrics E.1.2, E.1.3 and E.3.1.

> Objective E.1: Strategically increase service, outreach and engagement at MSU.
>
> > Metric E.1.2: By 2019, the percentage of students, faculty and staff involved in service, outreach and engagement activities, with particular attention to underserved areas and minority populations, will increase.
> >
> > Metric E.1.3: By 2019 the number of MSU service, outreach, and engagement activities will increase.
>
> Objective E.3: MSU students, faculty and staff will have increased opportunities for leadership development.

Metric E.3.1: By 2019, the number of opportunities for leadership development and practice will have increased. Awareness of the opportunities will have also increased.

The engagement of students was described in an MSU News article, dated November 22, 2013 [appended]. Portions of that article are reproduced here:

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MSU students from any discipline have the background and abilities to benefit a community, Rogala said. The core group that worked in Ekalaka majored in earth sciences, history, graphic design, landscape design and film. Some of the participants had worked together on MSU's student newspaper, the Exponent. Some were active in MSU's student government.

The students, while in Ekalaka, prepared dinosaur fossils and redid an area of the Carter County Museum devoted to Native American artifacts. They organized a two-day Dino Shindig that drew more than 560 visitors to this southeast Montana town of 300. They built display cases and prepared for a new 12,000-square-foot addition that will feature fossils and casts of fossils found in southeast Montana. They planted trees, native plants and heirloom vegetables. They designed logos, a children's coloring book and the museum website.

"They came in. They took over. They did a wonderful thing and then they were gone. It was like a whirlwind," said Marilyn Schultz, assistant director of the Carter County Museum. "Some of the things they have done we could not have done -- ever."

Rogala said the collaboration was a huge success. She gave much of the credit to Nathan Carroll, one of the co-founders of SCOPE and an Ekalaka native who graduated from MSU with a degree in paleontology. He is now pursuing his master's degree at MSU while serving as curator of the Carter County Museum.

Sabre Moore from Wright, Wyo., one of the students who spent the summer in Ekalaka, said, "It was a wonderful opportunity. It was definitely one of the best things I have agreed to do."

The museum project allowed her to use her history major and three minors (museum studies, Native American studies and English literature studies) in a variety of ways, Moore said. She designed exhibits for the Native American collections, for example. She helped the museum reach Native American Graves Protection and Reparation Act (NAGPRA) accreditation, set up new displays and created a handbook for the museum collections.

Tammi Heneveld, a graphic design major from North Pole, Alaska, designed promotional materials and a new website for the museum.

"It was a really fulfilling and almost profound experience for me," Heneveld said. "It's really inspiring to know that I can use my degree to help an organization or cause that I really care about, and I have the opportunity to be something bigger than myself. It was also a lot of fun to work alongside a bunch of my friends."

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While working to updated the displays in the Custer County Museum was a great summer engagement project, that was only the beginning for some members of the team. They saw a need to assist more students and communities find matches between projects and skill sets, and created Project SCOPE (Student Community Outreach ProjEct) to exand opportunities in the future.

Again, quoting from the MSU News article dated November 22, 2013:

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"This concept isn't new at all," said Shelby Rogala, a 2012 MSU graduate and SCOPE's interim director. "We are a land-grant university. This is our mission. But we hope to make it more accessible and more supported."

. . .

Students who participate next summer will be able to be able to work at the Carter County Museum or other projects elsewhere, Rogala said. In addition to the projects listed on the SCOPE website, she is looking for other projects.

One available project already involves Katie Liebenstein of Portland, Ore., a pre-nursing student who graduated from Lewis and Clark College four years ago in history. She is working with MSU Extension Community Resources Specialist David Young to create a curriculum for inmates at the Gallatin Valley Detention Center on health literacy and the Affordable Care Act.  Starting Jan. 1, she will go to the Detention Center to teach the curriculum and work alongside the inmates as they work through the financial and health questions involved in enrolling in the healthcare program.

"It is challenging work, but I look forward to working with the inmate population soon," Liebenstein said.

She added that she wanted to become involved with SCOPE because she was interested in working on a local issue involving public health. If a project wasn't already in the works, she figured there was always a need for more outreach and education regarding community health.

"SCOPE is a great organization because they have the means to connect students with authentic research and outreach projects in local communities and around Montana," Liebenstein said. "I think getting to work on a project that is directly impacting the Bozeman community is really powerful and makes me feel more connected to this place and to my studies."

Another new project would have students help a regional economic development group create a marketing plan, identification and materials. The group is the Beartooth RC & D Area, Inc., which works primarily in rural communities across Sweet Grass, Stillwater, Carbon, Yellowstone and Big Horn counties.

SCOPE began last year as a pilot program. Rogala said part of her job now is looking for resources both off and on campus to support the SCOPE students. Those who worked at the Carter County Museum volunteered their time, receiving free lodging at a nearby camp for hunters with

physical challenges. They were plied with cookies and homemade casseroles. Some earned classroom credit for their work. Others carried the experience with them as they started their first job after graduation.

Rogala is working particularly closely with MSU's Undergraduate Scholars Program to write grants that will support SCOPE students. She is also checking into internship and scholarship possibilities.

Colin Shaw, director of the Undergraduate Scholars Program, said he believes in SCOPE.

"Undergraduate research and engagement are two pillars of the MSU mission that we have been working to integrate for some time," Shaw said. "SCOPE will connect the research and creative energy of our undergraduate students with real community needs.

"As a student-conceived grassroots organization, SCOPE is well positioned to build relationships with the community and find new ways for our students to help in solving real-world problems through research and creative projects," Shaw said. "This is really a great way for our students to combine rigorous academic research with service to the broader community."

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This project has not only allowed MSU students to engage with communities, but has allowed the SCOPE founders to develop leadership skills as well. While participation in meaningful engagement activities may be a tough objective to quantify, it is clear that the revamping of the Custer County Museum and the creation of Project SCOPE were highly successful engagement activities for those involved.