State University of New York
College of Environmental Science and Forestry

Assessment Progress Report

MSCHE Accreditation

1 March 2014
Version 2.00

Contents

Executive Summary

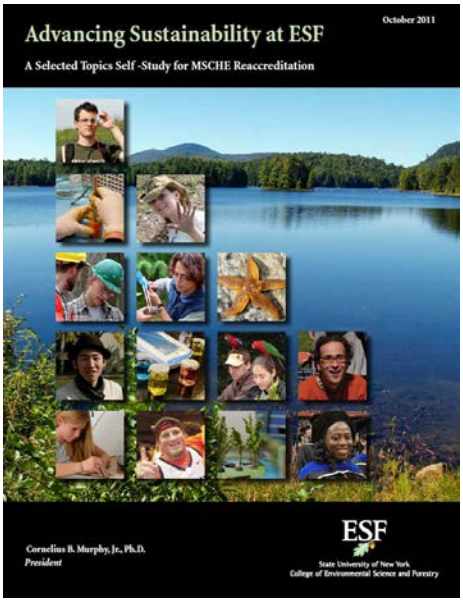
SUNY-ESF's continuously-improving assessment program ensures a well-functioning institution with excellent academic programs and well-prepared graduates. This report describes the continuing improvements in the process and documents institutional effectiveness and assessment of our student learning outcomes as related to MSCHE Standards 7 and 14. Specifically, we provide documents that outline our institutional processes in terms of institutional effectiveness and assessment, program assessment, and general education assessment. In addition, we continue the implementation of the campus-wide assessment management system that has allowed for the systematic documentation of the assessment processes at SUNY-ESF.

The document *Institutional Assessment and Effectiveness* outlines the processes used to assess the achievement of the institution's goals and indicators, including the adoption of new goals and modifications, to the indicators used to assess the achievement of these goals. Over the past year, a new goal was added and several of the indicators have been changed. In addition, examples of the use of this data in resources allocation have been provided. With the appointment of a new President, Dr. Quentin Wheeler, a more extensive, institution-wide strategic planning process is expected to begin.

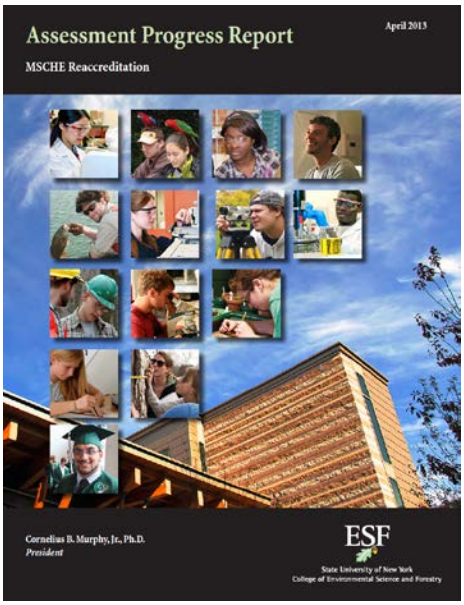
The document *Program Assessment* outlines the process for program assessment of the student learning outcomes and the process of periodic program review at SUNY-ESF. The various academic departments have the primary responsibility for the oversight and assessment of the academic programs. TracDat®, the campus's assessment management system, is currently in its third year of use for this purpose. Examples of the reports are given in this report. Also, during the current academic year, the Chemistry program and the programs in the Department of Forest and Natural Resources Management are being reviewed.

The document *General Education Assessment* outlines the current process and status for general education assessment at SUNY-ESF. The general education program and assessment processes have been evolving over the past 15 years. The current assessment process uses a combination of institutional data (admissions information, placement test results), specific course assessments (basic communications), program student learning outcomes, and external surveys. After the completion of the full three-year cycle of assessment, improvements will be made in the processes used for general education assessment.

Introduction



The 2009 *Assessment of Institutional Effectiveness and Student Learning at ESF* Report to Middle States documented our assessment process including academic program and administrative assessment plans, data collection, reporting and sharing within the institution. The parallel assessment processes for administrative units and academic programs flows into the institutional planning and resource allocation process as seen in Figure 1. The figure shows that feedback loops exist at a number of levels. For example, within the Academic Departments, feedback on the shorter terms is available through the administration review of the assessment plans as well as through the periodic assessment of the Student Learning Outcomes. Similar feedback is received by the Administrative Units. Longer-term feedback goes through the Institutional Resource Allocation process directly to the Academic Departments and through even longer-term processes through the SUNY Mission Review and the SUNY Board of Trustees as they reflect on the SUNY-ESF Mission and Strategic Planning Goals.



In April 2013, ESF provided the Middle States Commission on Higher Education with a progress report. This report described the foundation, process, and outcomes of our assessment program for the achievement of institutional effectiveness and student learning outcomes as related to MSCHE Standards 7 and 14. Specifically, we exhibited the communication and use of assessment data in decision-making and resource allocation in administrative and academic program efforts as requested by MSCHE in March 2012 upon reaffirmation of accreditation of SUNY-ESF.

Middle States Commission Action

In June 2013, the Middle States Commission on Higher Education acted:

To accept the progress report. To request a progress report, due March 1, 2014, documenting further implementation of an organized and sustained assessment process to evaluate the full range of programs and services offered by the institution with evidence that results are being used to inform institutional planning, budgeting and resource allocation decisions (Standards 7 & 14). The Periodic Review Report is due November 1, 2017.[1]

Organization of this Report

This report provides an overview of the assessment procedures in terms of institutional assessment, program assessment and review, and general education assessment. For each section, the document outlining the procedures is referenced and attached. Examples are given in support of the assessment being done in each.

[1] Letter to Dr Cornelius B. Murphy, Jr. from R. Barbara Gitenstein, Ph.D., Middle States Commission on Higher Education, dated 28 June 2013.

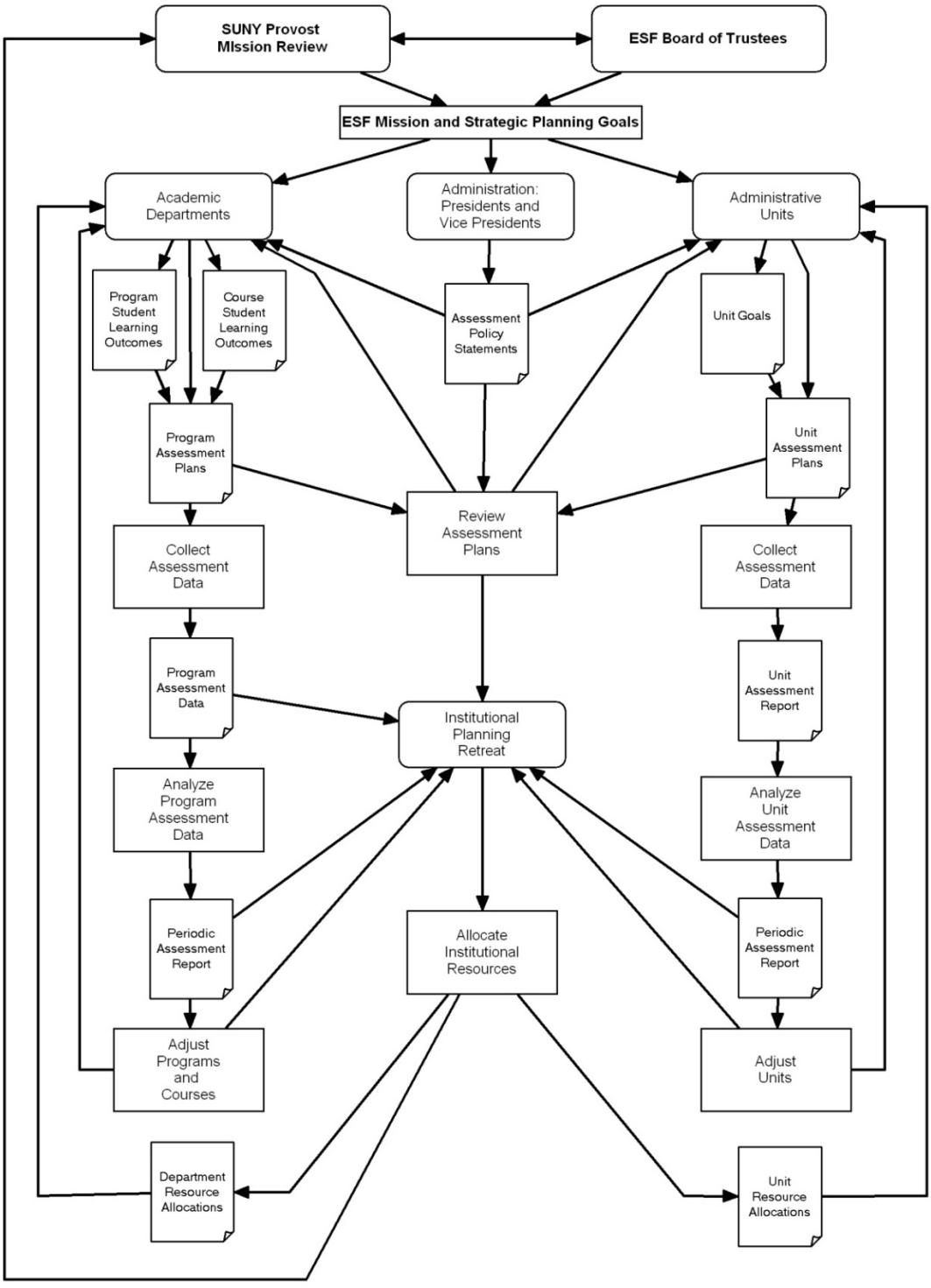


Figure 1. Assessment data and decision flow at SUNY-ESF, which illustrates the parallel process of assessment of academic programs and administrative units flowing into the institutional decision-making process.

Institutional Assessment

Figure 1 provides an overview of the assessment process at SUNY-ESF. The processes and data flow with respect to the academic departments are shown in the left-hand track of the diagram with the parallel processes for administrative units shown on the right. Central to the process, especially with respect to institutional planning, is the review and planning process at the institutional level. Assessment at SUNY-ESF is overseen by the Assistant Provost for Assessment and Academic Initiatives who reports to the Provost and Vice President for Academic Affairs (http://www.esf.edu/facstaff/org/provost.pdf).

Over the past year, the process of institutional assessment has been regularized as outlined in the 2014 document *Institutional Assessment and Effectiveness*, which outlines the process currently used at SUNY-ESF. As indicated in the document, the key annual meeting to review institutional assessment is the Full Cabinet Retreat at the end of July. Review and modification of institutional goals and indicators takes place using the process outlined below.

As mentioned in the previous report, the institutional goals were originally set during a strategic planning process to produce the *ESF Vision 2020* strategic plan, which has guided the institution over the past decade or so. In the previous MSCHE report, various indicators were enumerated that demonstrate progress towards these goals. The goals and indicators discussed in the previous report are summarized in Appendix 1 – Institutional Goals and Indicators (2012-2013). The data for the indicators were primarily obtained from the unit reports provided annually by all the administrative units.

During the 2013 Full Cabinet Retreat, the current appropriateness of the goals and indicators were reviewed, resulting in the updated goals and indicators outlined in Appendix 2 – Institutional Goals and Indicators (2013-2014). From these discussions, an additional goal was added:

8. Model and promulgate best sustainability practices

This goal represents the colleges more recent emphasis on sustainability, especially as discussed in the MSCHE Self-Study document. In addition, to determining appropriate indicators for this new goal, several indicators were changed for other goals representing the changing emphasis on existing goals. For example, *Student Athletics* was added as an indicator for Goal 2 to recognize SUNY-ESF's growing athletic program. In addition, indicator 3 for Goal 3 was changed from *Column inches of press* to *Visitors to College website* as a

better indicator of college recognition due to the changing sources of information used by the public.

Unit goals in support of institutional goals and indicators

The administrative units at the college support the college institutional goals. To this end, units that support and report on the various institutional goals and indicators are outlined in the assessment matrix provided in Appendix 3 – Institutional Assessment Matrix. This assessment matrix represents the goals and indicators for the current 2013-2014 academic year and specifies the units that will report on the particular indicator. In addition to the institutional goals and indicators outlined in the matrix, units typically have additional unit goals specific to their operations. These goals are outlined in their unit assessment reports in TracDat®.

Sustained assessment of institutional indicators

The implementation of the TracDat® system allows for a consistent and sustained process for assessment across all the administrative units on campus. Beginning with the 2012-2013, units reported on their achievement of their unit goals using the TracDat® system. An example of a unit assessment report is given in Appendix 5 – Unit Assessment Reports (2012-2013).

Beginning with the 2013-2014 academic year, the institutional goals are explicitly tracked in TracDat® to efficiently outline the assessment of the institutional goals and indicators. At the end of the academic year, the appropriate reporting units will provide the specific assessment information for which they are responsible.

All of the assessment reports are available on the College's assessment website.

Assessment used in planning and resource allocation

Outline of Planning Process

Planning, the exercise of identifying priority objectives and specific actions to achieve them, occurs annually at the unit and institutional levels. For academic units, the plans are reviewed and approved by the Provost and Vice President for Academic Affairs in the spring preceding the start of the academic year. The plans are documented in the unit annual reports, which contain retrospective analysis of the past year's accomplishments and prospective plans for the coming year. For administrative units, plans are reviewed by the

supervising Vice President or President. They are reported at the Annual Cabinet Retreat and documented in the Annual Cabinet Retreat Report.

At the institutional level, planning is done primarily by the Executive Cabinet (including the President and Vice Presidents for Academic Affairs, Administration, and Enrollment Management and Marketing) using input from the unit heads. Adjustments are made in group discussion with the Full Cabinet during the Annual Cabinet Retreat.

Assessment in the Planning Process

At the institutional level, a number of "key indicators," representing specific priority objectives within the broad institutional goals, are monitored and reviewed by Full Cabinet. For each key indicator annual targets are set. Targets are generally proposed by unit heads and approved by Executive Cabinet. The annual Cabinet Retreat is used examine plans to meet the targets.

Periodically the Full Cabinet reviews the list of key indicators to assess whether they represent current priorities. A major revision of the key indicators was accomplished in the 2013 Annual Cabinet Retreat.

At the unit level, assessment reports are prepared annually by administrative units. These reports analyze data collected and, where appropriate, outline actions to be taken to meet targets. For the academic departments program assessment beyond student learning outcomes is primarily accomplished by periodic external review, typically every sixth year. External review includes a site visit by two faculty members from peer institutions who subsequently file a report of findings and recommendations. The department then produces a written response which is discussed with the Provost. The response is then amended as necessary to serve as an action plan.

Resource Allocation

Resource allocation decisions are made at the Executive Cabinet level, at the vice presidential level and at the unit level. The process includes both bottom-up and top-down elements. Units prepare their budgets based on their annual plans. These are reviewed and approved by the supervising Vice President. Requests for resources beyond the "base" allocation may be addressed by the supervising Vice President or considered by the Executive Cabinet. In preparing the final budget, the Executive Cabinet examines proposals from each of the Vice Presidents and the President in consideration of the College priorities.

Two Examples

Financial Aid: Each year the Executive Cabinet determines the funding that will be provided for financial aid. In determining that amount, goals are set for total enrollment, out-of-state enrollment, enrollment of students in under-represented groups, and student quality. Based on these goals, the Vice President for Enrollment Management and Marketing estimates the financial aid needed to achieve these targets. The estimate is based largely on experience from the previous two to three years. The estimate is presented to Executive Cabinet as a recommendation which is considered in light of other priorities and the potential consequences of increasing or decreasing the recommended funding. Over the past several years, the College has significantly increased funding for financial aid and successfully met all of the aforementioned targets.

Curriculum Revision in Construction Management: In 2012 the Department of Sustainable Construction Management and Engineering (SCME) underwent external review. The principal recommendations from the external reviewers were to (1) maintain the emphasis on sustainability in the Construction Management program that had been introduced four years earlier, and (2) revise the curriculum to meet American Council for Construction Education accreditation. The latter recommendation was made to better align the curriculum with workplace needs, resulting is stronger recruitment of students and increased employment opportunities for graduates. The SCME Department and the Provost accepted these recommendations in consultation with the Vice President for Enrollment Management. The SCME Department subsequently proposed a revised curriculum which was approved by Faculty Governance. The new curriculum goes into effect in Fall 2014. The revised curriculum differs from the previous one in having significantly more emphasis on business management. To implement the revised curriculum additional faculty resources are needed to provide instruction in this area. The Provost, using funds at his disposal, has committed to providing the resources needed for this purpose.

Program Assessment

Student learning is assessed through annual assessment of Student Learning Outcomes and the periodic review of the educational programs at SUNY-ESF. The procedures used are provided in the accompanying document *Program Assessment*. An update on the status of student learning assessment is provided below.

Student Learning Outcome Assessment

Student learning outcome assessment is now in its third cycle of using the TracDat® system for program assessment of student learning outcomes (2011-2012, 2012-2013, and 2013-2014). At the conclusion of each academic year, the various departments provide assessment data through the TracDat® system, outlining their assessment results. An example of the end of year report for 2012-2013 is given in Appendix 6 – Program Assessment Report (2012-2013). All of the department assessment reports are provided on the College's assessment website.

Program Review

Per the schedule provided in the *Program Assessment* document, each educational program is reviewed by either an external accrediting body or a peer group on a six-year cycle (unless otherwise specified by the accrediting body). During the current academic year, the Chemistry program and the programs in the Department of Forest and Natural Resources Management are being reviewed. The results of the past program reviews can be found on the College's assessment website.

General Education Assessment

The assessment plan for the General Education Requirements has also been evolving since implementation of the standardized requirements in 1999. Initially, campuses within the SUNY system designed a program to assess the General Education Requirements of their individual campuses. SUNY-ESF's program was designed around a three-year cycle to address the knowledge areas and competencies. In 2007, SUNY centralized the assessment process and required institutions to use system-mandated "Enhanced General Education Assessment" to address several of the core areas including:

- Mathematics
- Basic Communications
- Critical Thinking
- Academic Environment

In Spring 2011, system financial support for the mandated assessment was eliminated and the Office of Instruction and Graduate Studies at SUNY-ESF began working with the Committee on Curriculum (Faculty Governance) to develop a new General Education Assessment plan addressing the recent changes in the General Education Requirements and reflecting the loss of state funding for the standardized assessment instruments (D#04 - 2010 - CLT Report Assessment of General Education at SUNY-ESF.pdf and D#05 - 2011 - General Education flexibility and assessment status report.pdf). As indicated in the April Report (pp. 30ff), changes in the curricula and courses offered at SUNY-ESF must be approved by the Faculty Governance process through the College's Committee on Curriculum.

Moving forward, the "seamless transfer" policy, recently approved by the SUNY Board of Trustees, requires each SUNY institution to accept courses meeting the General Education Requirements from all other institutions in the system. The implementation of this policy will require further curricular and assessment changes, and limits individual campus control over General Education and its outcomes. Therefore, it must be determined how responsibilities for General Education assessment will be allocated among the individual campuses and the System as a whole.

The attached document, *General Education Assessment,* outlines the current General Education Assessment program and the proposed General Education Assessment plan that will be reviewed and implemented in the upcoming year.

The proposed General Assessment plan divides the assessment into the five categories based on the SUNY implementation plan:

- Basic Communication
- Mathematics
- Broad Education (includes the other eight general education categories collectively)
- Critical Thinking
- Information Management

Within each of these categories, the assessment is done through a combination of assessment within specific courses, assessment within the academic programs, assessment through standardized tests, and assessment through surveys. The specifics of the assessment plan are given in *General Education Assessment.*

As indicated above, the General Education Assessment plan is currently under further development at SUNY-ESF. However, some data were gathered based on the 2011-2012 and 2102-2013 academic years to preliminarily assess the General Education program as well as to evaluate the availability of the necessary data and the need for additional data. Some of the preliminary data collected based on the 2011-2012 and 2012-2013 academic years are given in Appendix 4 – General Education Assessment Data.

Conclusions

In the action of the Middle States Commission on Higher Education with respect to the affirmation of the accreditation of SUNY-ESF, the Commission requested a report of further implementation of an organized and sustained assessment process to evaluate the full range of programs and services offered by the institution with evidence that results are being used to inform institutional planning, budgeting and resource allocation decisions. The actions taken that are documented in this report, address standards 7 and 14.

The assessment of institutional effectiveness has been implemented and documented using the TracDat® system. The administrative unit reports for the 2012-2013 academic year were completed using the system. In addition, the institutional goals and indicators have been implemented in the TracDat® system and the units responsible for reporting on the metrics related to each indicator have been identified. With respect to reporting the results at the end of the academic year, the "assignment" feature of the TracDat® system will be used so that the reporting units will directly enter the appropriate information into the system, allowing for more timely production of the assessment report on the institutional goals. In addition, academic units will continue to set and report their unit goals using the system.

Student learning outcomes assessment is in its third year of using the TracDat® system. The results are reported on an annual basis and used to determine and track program improvements. The schedule for the external program reviews assures that all programs are regularly reviewed by either an accrediting body or peer group.

While the general education program is well-established, the assessment processes are still under development after the SUNY system abandoned their system-wide assessment procedures. The current draft of the general education processes outlined we believe will effectively allow for the assessment of the current SUNY general education program. The appropriate faculty committees and units will review the procedures for implementation in the 2014-2015 academic year.

The assessment processes have been clearly outlined in the three assessment procedure documents (attached to this report):

- *Institutional Assessment and Effectiveness*
- *Program Assessment*
- *General Education Assessment*

In addition, assessment data continues to be made available in terms of the annual assessment reports and external program reviews through the use of the College's assessment website.

Appendix 1 – Institutional Goals and Indicators (2012-2013)

Goals	
Indicators	**Metrics**
1: Enrich academic excellence in both undergraduate and graduate education	
1. Student satisfaction with education	NSSE and SOS results
2. External assessment of academic programs	Evaluation reports
3. Placement of students after graduation	Graduating student placement survey
4. Academic qualifications of entering students	SAT and HS averages (EMM-UAIR); GRE and undergraduate GPA (AA-IGS)
5. Research publications	Research publications per faculty member
2: Provide an outstanding student experience	
1. Student satisfaction with experience	NSSE and SOS results
2. Student retention and graduation	First-year retention and 6-year graduation rate (EMM-VP); MS and PhD graduation rates (AA-IGS)
3. Study-abroad	International experience participation;
4. Honors program completion	Number of Honors Program students
5. Community Service Hours	Community service hours
3. Be the "go-to" institution with a strong and visible reputation	
1. Applicants for admission to undergraduate and graduate programs	Number of undergraduate applicants (EMM-UAIR); Number of graduate applicant (AA-IGS)
2. Receive recognition in USNews and other popular press rankings	College rankings
3. Column inches of press and stories carried by news syndicates	Column inches of press
4. External research funding	Total research funding; funding per faculty member
5. Faculty recognitions by external agencies	Faculty honors and reports
4: Become financially secure and independent	
1. Increase endowment	Foundation endowment
2. Growth of external research funding	Total research funding; funding per faculty member
3. Grow funding from licenses and royalties	License and royalty income; patent applications; patent allowances
4. Increase tuition and fee revenue primarily through enrollment growth	Undergraduate enrollment (EMM-UAIR); Graduate enrollment, graduate tuition incentive program (AA-IGS)

5. Minimize administrative overhead costs	Goldwater Institute ranking (PRES-GRIP); Administrative headcount, Administrative costs (ADMIN-BA)
5: Strategically build and enhance partnerships and collaborative relationships	
1. Strengthen relationships with state agencies	Liaison to elected officials, shared services (PRES-GRIP); Number of partnerships (AA-O); Number of events or projects (AA-RP)
2. Partner with regional public and private entities to enhance community welfare	Number of partnerships (AA-O); Community service projects (AA-SA)
3. Develop new partnerships that expand research capacity	Number of new entities; Incremental research funding
4. Develop new partnerships to expand educational outreach	Number of faculty members and departments involved; Number of ESF in the High School schools and participants
5. Develop new partnerships that expand opportunities for students	Number of community service partners, External funding for credit and non-credit programs (AA-O); Number of student exchange programs (AA-IGS)
6: Respond to the needs of society	
1. Increase enrollment	Undergraduate enrollment (EMM-UAIR); Graduate enrollment (AA-IGS)
2. Increase diversity in student and staff populations	Minority and women staff (ADMIN-HR); Minority and women undergraduates (EMM-UAIR); Minority and women graduate students (AA-IGS)
3. Create new academic programs that attract students	New programs implemented (AA-IGS)
4. Increase external research funding	Total research funding; funding per faculty member
5. Increase participation in ESF outreach programs	Alumni events and participation (PRES-AR); Events and attendance (PRES-D); ESF in the High School participation, outreach events (AA-O)
7: Invest in ESF's human resources and physical infrastructure	
1. Increase faculty salaries; ensure equity in pay	Salary analysis; pay-equity analysis
2. Increase faculty/staff training opportunities	Number of training programs and participants
3. Provide on-campus housing for students	Students in on- campus housing
4. Add green infrastructure to become carbon neutral	Carbon footprint (PRES-RES); Energy projects (ADMIN-FP, ADMIN-PP)
5. Add and renovate space to meet the needs of a growing institution	Building projects (ADMIN-FP, ADMIN-PP)
6. Upgrade information systems to meet contemporary data management needs	New system implementation

Appendix 2 – Institutional Goals and Indicators (2013-2014)

(Changes from the previous year are highlighted).

Goals	
Indicators	**Metrics**
1: Enrich academic excellence in both undergraduate and graduate education	
1. Student satisfaction with education	NSSE and SOS results
2. External assessment of academic programs	Evaluation reports
3. Placement of students after graduation	Graduating student placement survey
4. Academic qualifications of entering students	SAT and HS averages (EMM-UAIR); GRE and undergraduate GPA (AA-IGS)
5. Research publications	Research publications per faculty member
2: Provide an outstanding student experience	
1. Student satisfaction with experience	NSSE and SOS results
2. Student retention and graduation	First-year retention and 6-year graduation rate (EMM-VP); MS and PhD graduation rates (AA-IGS)
3. Participation in experiential learning (e.g. study abroad, research…)	International experience participation; Internship participation (NSSE/SOS); Honors program participation/completion
4. Satisfaction with residential experience	Resident survey; SOS and NSSE survey
5. Community Service Hours	Community service hours
6. Student Athletics	Number of teams; number of participants; number of events, GPA of athletes
3. Be the "go-to" institution with a strong and visible reputation	
1. Applicants for admission to undergraduate and graduate programs	Number of undergraduate applicants (EMM-UAIR); Number of graduate applicant (AA-IGS)
2. Receive recognition in USNews and other popular press rankings	College rankings
3. Visitors to College web site	Number of visitors to college website
4. External research funding	Total research funding; funding per faculty member
5. Faculty recognitions by external agencies	Faculty honors and reports
4: Become financially secure and independent	
1. Increase assets of ESF Foundation	Foundation assets
2. Growth of external research funding	Total research funding; funding per faculty member
3. Grow funding from licenses and royalties	License and royalty income; patent applications; patent allowances

4. Increase tuition and fee revenue primarily through enrollment growth	Undergraduate enrollment (EMM-UAIR); Graduate enrollment, graduate tuition incentive program (AA-IGS)
5. Minimize administrative overhead costs	Goldwater Institute ranking (PRES-GRIP); Administrative headcount, Administrative costs (ADMIN-BA)
5: Strategically build and enhance partnerships and collaborative relationships	
1. Strengthen relationships with federal, state, and private entities	Liaison to elected officials, shared services (PRES-GRIP); Number of partnershi9ps (AA-O); Number of events or projects (AA-RP)
2. Partner with regional public and private entities to enhance community welfare	Number of partnerships (AA-O); Community service projects (AA-SA)
3. Develop new partnerships that expand research capacity	Number of new entities; Incremental research funding
4. Develop new partnerships to expand educational outreach	Number of faculty members and departments involved; Number of ESF in the High School schools and participants
5. Develop new partnerships that expand opportunities for students	Number of community service partners, External funding for credit and non-credit programs (AA-O); Number of student exchange programs (AA-IGS)
6: Respond to the needs of society	
1. Increase enrollment and graduates	Undergraduate enrollment (EMM-UAIR); Graduate enrollment (AA-IGS)
2. Increase diversity in student and staff populations	Minority and women staff (ADMIN-HR); Minority and women undergraduates (EMM-UAIR); Minority and women graduate students (AA-IGS)
3. Create new academic programs that attract students	New programs implemented (AA-IGS)
4. Increase external research funding	Total research funding; funding per faculty member
5. Increase participation in ESF outreach programs	Alumni events and participation (PRES-AR); Events and attendance (PRES-D); ESF in the High School participation, outreach events (AA-O)
7: Invest in ESF's human resources and physical infrastructure	
1. Provide competitive salaries for faculty and staff; ensure equity in pay	Salary analysis; pay-equity analysis
2. Increase faculty/staff training opportunities	Compliance with SUNY training policies
3. Provide on-campus housing for students	Students in on- campus housing
4. Add green infrastructure to become carbon neutral	Carbon footprint (PRES-RES); Energy projects (ADMIN-FP, ADMIN-PP)

5. Add and renovate space to meet the needs of a growing institution	Building projects (ADMIN-FP, ADMIN-PP)
6. Upgrade information systems to meet contemporary data management needs	New system implementation
8. Model and promulgate best sustainability practices	
1. ASSHE STARS Sustainability Rating	STARS rating
2. Achieve LEED certification for all new building projects	LEED rating of building projects
3. Reduce energy consumption, especially from fossil fuels	Annual energy consumption; energy sources
4. Add green infrastructure to become carbon neutral	Carbon footprint

Appendix 3 – Institutional Assessment Matrix

SUNY-ESF Assessment Matrix

2014.02.28

R = Reporting P = Primary influence S = Secondary influence

Goals	Indicators	GI Nbr	Metrics	President					Administration								Academic Affairs								Enrollment Management and Marketing				
				President	Renewable Energy Systems	Development	Alumni Relations	Government Relations and Institutional Planning	Vice President for Administration	Business Affairs	Environmental Health and Safety	Forest Properties	Human Resources	Information Technology	Physical Plant	University Police	Provost and Vice President for Academic Affairs	Assessment and Academic Initiatives	Instruction and Graduate Studies	Outreach	Research Programs	Student Affairs	Academic Departments	College Libraries	Vice President for Enrollment Management and	Financial Aid and Scholarships	Undergradaute Admissions and Inter-Institutional Relations	Communications	Athletics
				PRES-P	PRES-RES	PRES-D	PRES-AR	PRES-GRIP	ADMIN-VP	ADMIN-BA	ADMIN-EHS	ADMIN-FP	ADMIN-HR	ADMIN-IT	ADMIN-PP	ADMIN-UP	AA-VP	AA-AAI	AA-IGS	AA-O	AA-RP	AA-SA	AA-AD	AA-CL	EMM-VP	EMM-FAS	EMM-UAIR	EMM-C	EMM-A
Leader				Q. Wheeler	M. Kelliher	B. Greenfield	D. Caviness	M. Fellows	J. Rufo	D. Dzwonkowski	J. Wasiel	R. Davis	M. Barber	Y. Tung	G. Peden	S. Beckstead	B. Bongarten	G. Scott	S. Shannon	C. Spuches	N. Ringler	A. Lombard	Various	AA-CL	R. French	J. View	S. Sanford	C. Dunn	D. Ramin
1: Enrich academic excellence in both undergraduate and graduate education	1. Student satisfaction with education	1.1	NSSE and SOS results																		R							
	2. External assessment of academic programs	1.2	Evaluation reports															R										
	3. Placement of students after graduation	1.3	Graduating student placaement survey																		R							
	4. Academic qualifications of entering students	1.4	SAT and HS averages (EMM-UAIR); GRE and undergraduate GPA (AA-IGS)																R								R		
	5. Research publications	1.5	Research publications per faculty member																		R								
2: Provide an outstanding student experience	1. Student satisfaction with experience	2.1	NSSE and SOS results																		R							
	2. Student retention and graduation	2.2	First-year retention and 6-year graduation rate (EMM-VP); MS and PhD graduation rates (AA-IGS)																					R					
	3. Participation in experiential learning (e.g. study abroad, research…)	2.3	International experience participation; Internship participation (NSSE/SOS); Honors program participation/completion																		R								
	4. Satisfaction with residential experience	2.4	Resident survey; SOS and NSSE survey																		R								
	5. Community Service Hours	2.5	Community service hours																		R								
	6. Student Athletics	2.6	Number of teams; number of participants; number of events, GPA of athletes																										R
3. Be the "go-to" institution with a strong and visible reputation	1. Applicants for admission to undergraduate and graduate programs	3.1	Number of undergraduate applicants (EMM-UAIR); Number of graduate applicants (AA-IGS)																R								R		
	2. Receive recognition in USNews and other popular press rankings	3.2	College rankings																									R	
	3. Visitors to College web site	3.3	Number of visitors to college website																									R	
	4. External research funding	3.4	Total research funding; funding per faculty member																		R								
	5. Faculty recognitions by external agencies	3.5	Faculty honors and reports														R												

4: Become financially secure and independent	1. Increase assets of ESF Foundation	4.1	Foundation assets			R																													
	2. Growth of external research funding	4.2	Total research funding; funding per faculty member					R															R												
	3. Grow funding from licenses and royalties	4.3	License and royalty income; patent applications; patent allowances																				R												
	4. Increase tuition and fee revenue primarily through enrollment growth	4.4	Undergraduate enrollment (EMM-UAIR); Graduate enrollment, graduate tuition incentive program (AA-IGS)							R								R		R														
	5. Minimize administrative overhead costs	4.5	Goldwater Institute ranking (PRES-GRIP); Administrative headcount, Administrative costs (ADMIN-BA)					R		R																								
5: Strategically build and enhance partnerships and collaborative relationships	1. Strengthen relationships with federal, state, and private entities	5.1	Liaison to elected officials, shared services (PRES-GRIP); Number of partnershi9ps (AA-O); Number of events or projects (AA-RP)					R												R	R													
	2. Partner with regional public and private entities to enhance community welfare	5.2	Number of partnerships (AA-O); Community service projects (AA-SA)																	R		R												
	3. Develop new partnerships that expand research capacity	5.3	Number of new entities; Incremental research funding																		R													
	4. Develop new partnerships to expand educational outreach	5.4	Number of faculty members and departments involved; Number of ESF in the High School schools and particpants																	R														
	5. Develop new partnerships that expand opportunities for students	5.5	Number of community service partners (AA-IGS), External funding for credit and non-credit programs (AA-O);																R	R														
			Number of student exchange programs (AA-IGS)																																	
6: Respond to the needs of society	1. Increase enrollment and graduates	6.1	Undergraduate enrollment (EMM-UAIR); Graduate enrollment (AA-IGS)																R									R							
	2. Increase diversity in student and staff populations	6.2	Minority and women staff (ADMIN-HR); Minority and women undergraduates (EMM-UAIR,AA-IGS); Minority and women graduate students (AA-IGS)										R						R								R							
	3. Create new academic programs that attract students	6.3	New programs implemented (AA-IGS)																R															
	4. Increase external research funding	6.4	Total research funding; funding per faculty member																		R													
	5. Increase participation in ESF outreach programs	6.5	Alumni events and participation (PRES-AR); Events and attendance (PRES-D); ESF in the High School participation, outreach events (AA-O)			R	R													R														

7: invest in ESF's human resources and physical infrastructure	1. Provide competitive salaries for faculty and staff; ensure equity in pay	7.1	Salary analysis; pay-equity analysis											R																			
	2. Increase faculty/staff training opportunities	7.2	Compliance with SUNY training policies											R																			
	3. Provide on-campus housing for students	7.3	Studentsin on- campus housing			R																											
	4. Add green infrastructure to become carbon neutral	7.4	Carbon footprint (PRES-RES); Energy projects (ADMIN-FP, ADMIN-PP)		R								R			R																	
	5. Add and renovate space to meet the needs of a growing institution	7.5	Building projects (ADMIN-FP, ADMIN-PP)										R			R																	
	6. Upgrade information systems to meet contemporary data management needs	7.6	New system implementation												R																		
8. Model and promulgate best sustainability practices	1. ASSHE STARS Sustainability Rating	8.1	STARS rating		R																												
	2. Achieve LEED certification for all new building projects	8.2	LEED rating of building projects													R																	
	3. Reduce energy consumption, especially from fossil fuels	8.3	Annual energy consumption; energy sources		R											R																	
	4. Add green infrastructure to become carbon neutral	8.4	Carbon footprint		R																												

Appendix 4 – General Education Assessment Data

Mathematics

The mathematics placement goals, procedure, and criteria are summarized in Table 1. In Fall 2013, 315 incoming students took the exam and their placement was determined by the coordinator of the mathematics program at SUNY-ESF. Students are placed in APM 101, Fundamentals of College Algebra; APM 103, Applied College Algebra and Trigonometry; APM 104, College Algebra and Precalculus; or APM 105 or higher, the various calculus courses. Based on the SUNY Mathematics student learning outcomes, placement into APM 104 or higher indicates that the outcomes have been satisfied.

Table 2 shows that over 90% of the incoming students are placed in APM 104 or higher, indicating satisfaction of the SUNY student learning outcomes for mathematics. Successful completion of APM 103 also indicates satisfaction of the learning outcomes. Table 3 shows that almost 90% of the students enrolled in APM 103 successfully complete the class. Table 4 shows that over 90% of the students enrolled in APM 101 successfully complete the class, allowing them to move onto APM 103.

Although other factors are taken into account with the placement decision (Table 1), the test itself remains a good indicator of satisfaction of the learning outcomes. A score of 18 or higher could generally indicate meeting the SUNY learning outcomes (Figure 1).

Table 1. Summary of the mathematics placement goals, procedure, and criteria.

Math Placement Goals:

The goal of the math placements is make sure that freshman and transfer students have a strong enough basis to succeed in the math course that they will be enrolled into.

Math Placement Procedure:

The following summarizes the process of the math placement procedure at SUNY ESF:

(1) All accepted incoming freshmen and transfer students take an online placement exam during the summer period. The exam opens in June and remains open until a month into the start of the semester. Students are expected to complete the online exam by mid-July

(2) The exam consists of 55 questions with the following distribution: 25 algebra questions, 10 Calculus I question, 10 Calculus 2 questions, 5 geometry questions, and 5 trigonometry questions.

(3) All students that score a 17 (68%) or below on the Algebra portion are analyzed. The data analyzed consists of placement scores, High-school transcripts, SAT/ACT scores, state exams, and personal essays. This usually makes up about half of the students that take the exam.

(4) Based on the available data, a recommendation is made to allow the student to enroll into the math course needed to fulfill the students program of study, or a lower level course to help the student strengthen their skills.

General Criteria of Math Placements for particular Courses:

Pre-Calculus courses: Students that score a 15 or below on the algebra, combined with a weak track record or math courses are recommended for APM 101, developmental algebra course.

Calculus courses: Students algebra skills are the best indicator of how successful a student can be in calculus. There are 25 algebra questions on the placement exam, students that score a 17 or below on the algebra are flagged and looked into with more detail. A 17 or below on the algebra combined with an overall score less than 30, usually indicates that a student will struggle in calculus. There are many factors that could give a false-negative such as the student didn't take the exam seriously, bad test taker, weak in Algebra, or they simply didn't refresh their skills after a long summer. Thus looking at other data is essential.

Table 2. Satisfaction of SUNY Mathematics student learning outcomes based on the SUNY-ESF math placement exam.

Course Placement	Placement in Courses		Satisfaction of Mathematics Student Learning Outcomes		
	Number of Students	Percentage		Number of Students	Percentage
APM 101	18	5.7%	Did not meet SLOs	31	9.8%
APM 103	13	4.1%			
APM 104	36	11.4%	Met SLOs	284	90.2%
APM 105 or higher	248	78.7%			

Table 3. Satisfaction of SUNY Mathematics student learning outcomes based on successful completion of APM 103.

Course Result	Results		Satisfaction of Mathematics Student Learning Outcomes		
	Number of Students	Percentage		Number of Students	Percentage
Withdrawn	1	3.8%	Did not meet SLOs	3	11.5%
Failed	2	7.7%			
Passed	23	88.5%	Met SLOs	23	88.5%

Table 4. Rate of completion of APM 101 for students to move into APM 103.

Course Result	Results		Satisfaction of Mathematics Student Learning Outcomes		
	Number of Students	Percentage		Number of Students	Percentage
Withdrawn	0	0.0%	Did not meet SLOs	1	6.3%
Failed	1	6.3%			
Passed	15	93.8%	Met SLOs	15	93.8%

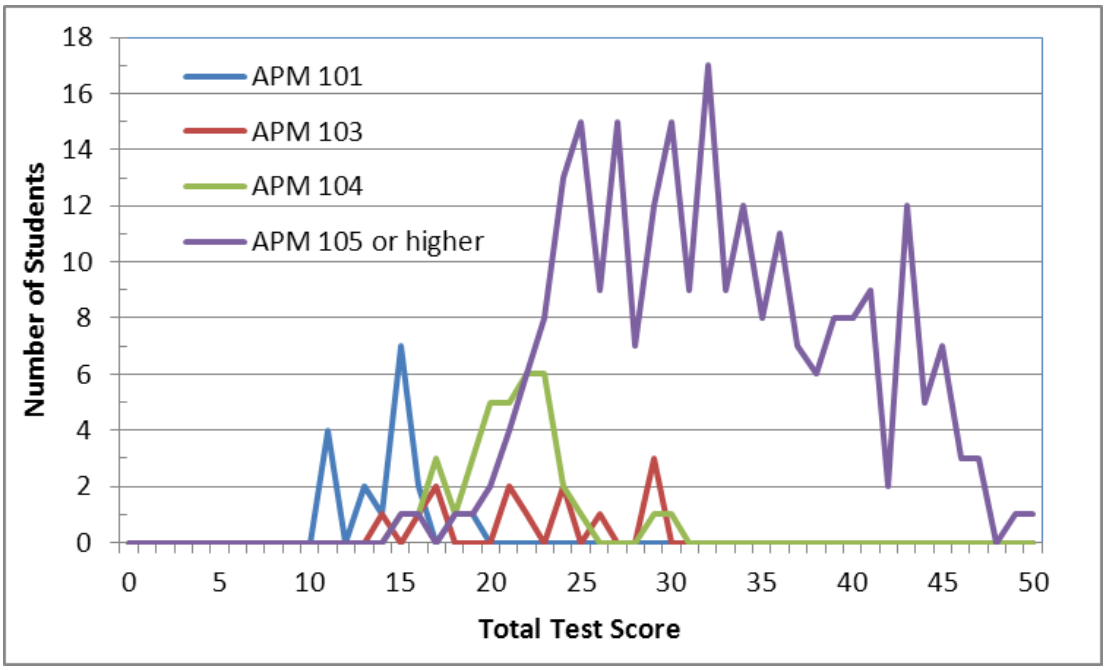


Figure 2. Distribution of student placement into mathematics courses at SUNY-ESF as a function of the total test score.

Basic Communication

The instructors of EWP 190, Writing and the Environment, have collected and have electronic records of students' final essays (which reflect the basic communication learning outcomes #1, #2, and #3), along with instructors' assignment sheets, grading rubrics, comments, and final grades. Table 5 summarizes the grade on the final essays as an indicator of attainment of the first three outcomes. Over 95% of the students meet the student learning outcomes by this measure (a grade of C- or better). Outcomes #4 and #5, while part of the course, are not explicitly assessed at this point. Over the next year, explicit assessment of these outcomes will be investigated with the Writing Program staff.

Table 5. Satisfaction of SUNY Basic Communications student learning outcomes as measured by EWP 190 project.

Project Grade (Performance)	Results		Satisfaction of Basic Communication Student Learning Outcomes		
	Number of Students	Percentage		Number of Students	Percentage
F	7	2.7%	Did not meet SLOs	9	3.5%
D	2	0.8%			
C+, C, C- (Meeting)	34	12.2%	Met SLOs	249	96.5%
B+, B, B- (Performing)	113	43.8%			
A, A- (Exceeding)	102	38.8%			

Critical Thinking

Critical thinking will be assessed within each of the academic programs by the department in charge of the program. Table 6 summarizes the results of the specific outcomes within each program where an appropriate outcome exists and data were available. Over the next year, programs that have not yet adopted an appropriate outcome will be asked to do so and assessment data will be provided and compiled for the assessment of this aspect of general education.

Table 6. Assessment of critical thinking within the educational programs at SUNY-ESF.

Program	Relevant Student Outcome	Student Outcome Assessment
Chemistry	The ability to effectively apply fundamental chemical principles and critical thinking in achieving the objectives of an integrative experience such as an internship or independent research project.	**Measure of assessment:** Rated performance in this area in FCH 498 (Senior Research) 1-5 scale: 1=Poor 3=Average 5=Outstanding **Result:** This was rated 3.2 in lab and 3.7 on the written report. Outcome satisfied.
Aquatics and Fisheries Science	Identify, analyze, and evaluate arguments as they occur in their own or others' work; and develop well-reasoned arguments.	Have not yet adopted this outcome.
Biotechnology	Demonstrate ability to make synergistic connections between concepts in biology, mathematics, chemistry, and physics as related to biotechnology.	
Conservation Biology	Be effective as a conservation biology professional by having mastered basic competencies: natural history broadly speaking, field methods, quantitative assessment and data analysis, taxonomic expertise in at least one major group of organisms, written and oral communication in technical-, popular- and	

	policy-specific genres, familiarity with relevant policy, law and government at local, regional, national and international levels, ability to critique of evidence/research products/proposals/work plans/budgets, and awareness of issues of professional conduct and ethics.	
Environmental Biology	Identify, analyze, and evaluate arguments as they occur in their own or others' work; and develop well-reasoned arguments.	Have not yet adopted this outcome.
Forest Health	Identify, analyze, and evaluate arguments as they occur in their own or others' work; and develop well-reasoned arguments.	Have not yet adopted this outcome.
Natural History & Interpretation	Design, implement, and evaluate personal interpretation, focusing on key elements and qualities.	
Wildlife Science	Identify, analyze, and evaluate arguments as they occur in their own or others' work; and develop well-reasoned arguments.	Have not yet adopted this outcome.
Environmental Science	Demonstrate ability to think critically and synthesize information across scientific and non-scientific disciplines in order to address complex problems.	**Measure of Assessment:** Demonstration of critical thinking and information synthesis in Senior Synthesis proposal from EWP 405 course. **Target:** 80% of students meet or exceed standard. **Results:** 76% meet or exceed standard. Did not meet outcome.
		Measure of Assessment: Demonstration of critical thinking and information synthesis showing development to a more sophisticated level in Senior Synthesis

		project final report. **Target:** 80% or students meet or exceed standard **Results:** 87% of students meet or exceed standard. Outcome satisfied.
Environmental Studies	Demonstrate critical thinking skills in relation to environmental affairs.	**Measure of Assessment:** EST 494 Survey Results Question 4a-c Strongly Agree (5); Somewhat Agree (4); Agree (3); Somewhat Disagree (2); Strongly Disagree (1) **Target:** 80% of students will achieve a 3 or better on rubric **Results:** 92% of students reached target. Outcome satisfied.
		Measure of Assessment: Grades on assignment translated to 4-point Rubric: As or 90%+=1 Bs or 80-89%=2 Cs or 70-79%=3 Ds or 60-69%=4 F or < 60% **Target:** 80% will meet or exceed (3 or 4 on rubric). **Results:** 90% of students met the target. Outcome satisfied.
Forest Ecosystem Sciences	a) Define a problem. b) Determine cause of the problem. c) Identify, prioritize and select alternatives for a solution (e.g., strategic, tactical and operational planning). d) Implement a solution. e) Explain the conceptual framework of each problem-solving step. f) Facilitate a team through a systematic process for problem-solving.	
Forest Resources Management	a) Define a problem. b) Determine cause of the problem. c) Identify, prioritize and select alternatives for a solution (e.g., strategic, tactical and operational planning). d) Implement a solution. e) Explain the conceptual framework of each problem-solving step. f) Facilitate a team through a systematic process for problem-solving.	

Natural Resources Management	a) Define a problem. b) Determine cause of the problem. c) Identify, prioritize and select alternatives for a solution (e.g., strategic, tactical and operational planning). d) Implement a solution. e) Explain the conceptual framework of each problem-solving step. f) Facilitate a team through a systematic process for problem-solving.	
Landscape Architecture	BLA graduates should be able to select, apply, and communicate an appropriate and defensible design process to address and solve a wide range of design and planning problems.	**Measure of Assessment:** Scale of 1 to 5: 1- No knowledge of the learning outcome = <59% (F), 2- Little /weak knowledge of the learning outcome = 60-69%(D/D+), 3 - Some knowledge and understanding of the learning outcome = 70-79%(C-,C,C+) 4 - Good working knowledge and understanding of the learning outcome = 80-89%(B-, B, B+), 5 - Excellent\complete understanding and knowledge of the learning outcome = >90% (A-,A) **Target:** 70% of students will achieve level 3 or higher. **Results**: Achievement of 3 or higher in LSA 459, LSA 458, LSA 460, LSA 422, LSA 326, LSA 220, LSA 226, LSA 470, LSA 425, LSA 423. LSA 327, LSA 227, and LSA 220. Outcome achieved.
		Measure of Assessment: Knowledge or understanding of stated outcome as follows: 1 - Strongly Disagree, 2 - Disagree, 3 - neutral/uncertain, 4 - Agree, 5 - Strongly Agree **Target:** 70% of students will agree or strongly agree (>4) they have gained knowledge and or understanding of the stated outcome. **Results:** LSA 433 75% of all students completed the survey, of those 93% scored 4 or above. Outcome achieved.

Paper Science	(b) an ability to design and conduct experiments, as well as to analyze and interpret data	
Bioprocess Engineering	(b) an ability to design and conduct experiments, as well as to analyze and interpret data	**Measure of Assessment:** Presentation/ Performance **Target:** At least 85% of the student work is at least at Proficient level (or 3). **Results**: Each student played group leader in one lab experiment. The student leader organized his/her group lab processions with guidance from the instructor and TA. In the process, learnt how to design and conduct experiments. In writing the report, the student analyzed and interpreted experimental data. Students, graduate students, and faculty rated the students' ability based on oral presentation and answering question. 82.8% evaluations (245 occurrences at least level 3 and 51 occurrences of less than level 2) placed the individual students at least at Proficient level.
Paper Engineering	(b) an ability to design and conduct experiments, as well as to analyze and interpret data	**Measure of Assessment:** A, B, C, D - In PSE 468 evaluation seminar at the conclusion of the paper machine run the students give seminars and field questions regarding their plan, performance, and results of the product design experience. Each team has approximately 30 minutes for a presentation and 60 minutes for questions and discussion. A panel of faculty and staff, including the course instructor and the TA, independently rate the students' abilities to analyze and present data from the paper machine runs. **Target:** We expect the average grade to be a B- on Run A and a B on the Run B. We expect 80% of the students to achieve a grade of C or better on Run A and 90% of the students to achieve a grade of C or better on Run B. **Results**: all students met the expectations of receiving above a grade of C on the

		presentations, except 30% of the students in Run A and 90% of the students for Run B in 2010.
Environmental Resources Engineering	(b) an ability to design and conduct experiments, as well as to analyze and interpret data	**Measure of Assessment:** ERE 365: Assessment considers components of outcome using overall grade on various labs to evaluate ability to: - design experiment - conduct experiment - analyze experiment - interpret data **Target:** Average score of 75% for each component **Results:** Design experiment - Average 91% Conduct experiment - Average 88% Analyze experiment - Average 96% Interpret Data - Average 93%. Outcome met.
		Measure of Assessment: APM 395: Assessment considers the first six levels of Bloom's Taxonomy: Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation. Each level is assessed using a quantitative rubric of 0, 1, and 2 points. 2 points - student has fully achieved the expected performance criteria 1 point - some but limited ability to address the performance criteria 0 points - little or no ability to address the performance criteria. **Target:** An average score of 1 should be obtained for each level **Results:** Knowledge - average = 1.4 Comprehension - average = 0.9 Application - average = 1.6 Analysis - average = 0.5 Synthesis - average = 1.6 Evaluation - average = 1.4 Outcome not met for all levels.

Information Management

Information management will be assessed within each of the academic programs by the department in charge of the program. Table 7 summarizes the results of the specific outcomes within each program where an appropriate outcome exists and data were available. Over the next year, programs that have not yet adopted an appropriate outcome will be asked to do so and assessment data will be provided and compiled for the assessment of this aspect of general education.

Table 7. Assessment of Information management within the educational programs at SUNY-ESF.

Learning Outcomes/Objectives		**Assessment**
Program	**Relevant Student Outcome**	**Student Outcome Assessment**
Chemistry	Competencies in the various tools required for the successful practice of chemistry: math, statistics, computer applications, information technology, etc, including the ability to critically evaluate the chemical literature as applied to their disciplines and to analyze data using appropriate tools.	**Measure of Assessment:** Rated performance in this area in FCH 498 (Senior Research) 1-5 scale: 1=Poor 3=Average 5=Outstanding **Result:** This was rated 3.2 in lab and 3.7 on the written report. Outcome achieved.
Aquatics and Fisheries Science	Demonstrate mastery of basic competencies needed to be an effective aquatic science professional, including understanding and application of the most common and important tools of aquatic ecology and fisheries, including organism collection, habitat assessment and related field and laboratory techniques, basic and applied mathematics and numeracy, statistics, and fundamentals of the scientific method.	
Biotechnology	**Perform the basic operations of personal computer use; understand and use basic research techniques; and locate, evaluate and synthesize information from a variety of sources.**	Have not yet adopted this outcome.

Conservation Biology	Be effective as a conservation biology professional by having mastered basic competencies: natural history broadly speaking, field methods, quantitative assessment and data analysis, taxonomic expertise in at least one major group of organisms, written and oral communication in technical-, popular- and policy-specific genres, familiarity with relevant policy, law and government at local, regional, national and international levels, ability to critique of evidence/research products/proposals/work plans/budgets, and awareness of issues of professional conduct and ethics.	
Environmental Biology	Use the scientific method and apply appropriate laboratory and field techniques to answer questions and solve problems in environmental biology.	
Forest Health	Demonstrate proficiency in the skills utilized by practicing forest healthspecialists including: geospatial skills; data management and analysis; establish sampling sites; monitor forest health; tree, pest, & pathogen recognition; aseptic transfer & culture of microorganisms; standard forestry practices & techniques.	
Natural History & Interpretation	**Perform the basic operations of personal computer use; understand and use basic research techniques; and locate, evaluate and synthesize information from a variety of sources.**	Have not yet adopted this outcome.
Wildlife Science	Assess habitat quality and animal populations by means of scientific surveys, statistics, and other quantitative methods.	
Environmental Science	Demonstrate ability to plan and execute research relevant to the student's option area with faculty guidance.	**Measure of Assessment:** Performance of students on capstone paper evaluated for research ability.

		Target: 80% or students meet or exceed standard **Result:** 4a (research ability): 90% meet or exceed 4b (relevance to option): 89% meet or exceed 4c (faculty consultation): 86% meet or exceed. Outcome satisfied.
		Measure of Assessment: Distribution of mean performance of Env Sci students in EWP 405 as measured by final grades. **Target:** 80% of students meet or exceed standard **Result:** 100% of students meet or exceed. Outcome satisfied.
Environmental Studies	**Perform the basic operations of personal computer use; understand and use basic research techniques; and locate, evaluate and synthesize information from a variety of sources.**	Have not yet adopted this outcome.
Forest Ecosystem Sciences	a) Plan, conduct, and analyze forest inventories including biological, physical, and social-economic elements using appropriate statistical sampling methods. b) Identify the major species, both flora and fauna, in a given area correctly. c) Project stand and forest development using computer based and non-computer based growth and yield models.	
Forest Resources Management	a) Plan, conduct, and analyze forest inventories including biological, physical, and social-economic elements using appropriate statistical sampling methods. b) Identify the major species, both flora and fauna, in a given area correctly. c) Project stand and forest development using computer based and non-computer based growth and yield models.	
Natural Resources Management	a) Identify the major species, both flora and fauna, in a given area correctly. b) Assess the extent of human impacts on forests, watersheds, and other natural areas. c) Plan, conduct, and analyze forest and watershed ecosystem and/or natural area inventories, including biological, physical, and social resources. d) Describe and apply different statistical	

	sampling methods to user groups, forests, watersheds and/or natural areas.	
Landscape Architecture	BLA graduates should be able to incorporate significant technical considerations necessary for the implementation of site designs, including site grading, drainage and stormwater management, erosion control, soils design, design of pedestrian and vehicular circulation systems, parking design, incorporation of ADA/universal design requirements, incorporation of sustainable systems, and design of ecologically suitable/sustainable plantings.	**Measure of Assessment:** Scale of 1 to 5 1- No knowledge of the learning outcome = <59% (F), 2- Little /weak knowledge of the learning outcome = 60-69%(D/D+), 3 - Some knowledge and understanding of the learning outcome = 70-79%(C-,C,C+) 4 - Good working knowledge and understanding of the learning outcome = 80-89%(B-, B, B+), 5 - Excellent\complete understanding and knowledge of the learning outcome = >90% (A-,A) **Target:** 70% of students will achieve level 3 or higher **Results:** Achievement of 3 or higher in LSA 460, LSA 433, LSA 422,LSA 326, LSA 470, LSA 423, LSA 343, LSA 342, LSA 327, LSA 227, LSA 226. Outcome met in all listed courses.
		Measure of Achievement: Knowledge or understanding of stated outcome as follows: 1 - Strongly Disagree, 2 - Disagree, 3 - neutral/uncertain, 4 - Agree, 5 - Strongly Agree **Target:** 70% of students will agree or strongly agree (>4) they have gained knowledge and or understanding of the stated outcome. **Results:** LSA 433 75% of all students completed the survey, of those 67% scored 4 or above. Outcome not met.

Paper Science	(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	
Bioprocess Engineering	(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	**Measure of Achievement:** Final Project **Target:** 80% of the stduents are at least at acceptable level (3). **Results:** With six labs, the student learned the use of fermentation equipment, data analysis tools, biological handling facilities. These included Bioflo bioreactor, PCR station, batch enzymatic reactor, flow injection reactor, anaerobic digester, UV-vis, MS Excel, MS word, etc. Over 91% (a total of 62 occurrences at a level no less than 3 while 6 occurrences at a level no greater than 2) of the students reached acceptable level, the outcome is achieved.
Paper Engineering	(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	**Measure of Achievement:** - In PSE 468 evaluation seminar at the conclusion of the paper machine run, the students give seminars and field questions regarding their plan, performance, and results of the product design experience. Each team has approximately 30 minutes for a presentation and 60 minutes for questions and discussion. A panel of faculty and staff, including the course instructor and the TA, independently rate the students' abilities to analyze and present data from the paper machine runs. The ratings were specifically broken out with respect to the PSE student outcomes a, ,b , c, e, l, and k. **Target:** We expect the average grade to be a B- on Run A and a B on the Run B. We expect 80% of the students to achieve a grade of C or better on Run A and 90% of the students to achieve a grade of C or better on Run B for student outcomes a, b, c, e, i, and k. **Results:** Students can demonstrate an understanding and ability of the need for life-long learning by improving their performance during the course of a

		semester. All students in PSE 468 must give a seminar and answer questions in a discussion-type setting based on their results of two semi-commercial paper machine runs (Run A and Run B). Since their performance is assessed essentially the same way in Run A and Run B, an improvement in performance from Run A to Run B can demonstrate the ability for life-long learning. The students generally demonstrated improvement from Run A to Run B with respect to the quality of the seminar and discussion based on their results and analysis. Since the outcomes were individually assessed by the faculty and staff, the students showed on average, an improvement (on a 4-point scale) of 0.12 for the year 2009 and 0.40 for the year 2011 and 0.29 for the year 2012. For 2010, the student average did not show an improvement. However one student in class showed an improvement in the seminar from Run A to Run B. Overall students demonstrated that they learn from their experience on the first run, demonstrating an ability and understanding of lifelong learning.
Environmental Resources Engineering	(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	**Measure of Assessment:** ERE 440: Assessment considers four levels of Bloom's Taxonomy: Knowledge, Comprehension, Analysis, and Evaluation. Each level is assessed using a quantitative rubric of 0, 1, and 2 points. 2 points - student has fully achieved the expected performance criteria 1 point - some but limited ability to address the performance criteria 0 points - little or no ability to address the performance criteria. **Target:** Class average for each level should be at least 1.5 **Results:** Knowledge: 2.0/1.9 - Comprehension: 1.7/1.8 - Analysis: 1.8/1.6 - Evaluation: N/A (equipment failure - unable to assess). Outcome met.

		Measure of Assessment: Exit Survey: Students were asked to indicate their agreement/disagreement level with the statement asked was "I have the ability to use the techniques, skills, and modern engineering tools necessary for engineering practice." Strongly Agree (5 points) Agree (4 points) Neither Agree nor Disagree (3 points) Disagree (2 points) Strongly Disagree (1 point) **Target:** Average score at or above 4.0 **Results:** 4.5 Outcome met.

Broad Education

Broad Education is scheduled to be assessed at the end of the 2013-2014 academic year.

Appendix 5 – Unit Assessment Report (2012-2013)

Unit Assessment Report - Four Column

SUNY - College of Environmental Science and Forestry

Admin (VPAA) - Office of Research Programs

Mission Statement: To Stimulate, Facilitate and Highlight Top Quality Research at SUNY College of Environmental Science and Forestry

Unit Goals	Key Performance Indicators & Targets / Tasks	Results	Action & Follow-Up
Admin (VPAA) - Office of Research Programs - Proposals 12-13 - Provide the technical capacity and expertise to submit an increasing number and diversity of successful, competitive proposals by the majority of faculty in support of high-quality research. **Action Year(s):** 2012 - 2013 **Action Status:** Active	**Measure:** Quantify number of actual contacts with potential PIs. **Target:** 10-15 contacts	11/19/2013 - Increased proposals by 5%. More than 50 direct contacts with PI's from ORP; 65 faculty at four institutions in Hill Collaboration. Big turnout for presentations at Biotechnology Conference. Nine SUNY proposals for collaborative grants. Three new Institutes initiated (NFI, Trinity, UFI@ESF). **Target Met:** Evaluation - Met Target **Reporting Period:** 2012 - 2013	11/19/2013 - Expand Hill Collaboration to include infectious diseases. Stimulate two new institutes for formal approval. Connect with SUNY and RF to increase funding and collaboration. Formalize ESF/OEI. Seek NYSTAR and NYSERDA match for MRI (e-scope). Highlight selected Centers and Institutes, publications and grants (e.g., AEC).
	Measure: Number of Warrior research projects proposed. Number of VA-funded projects. **Target:** Document Warrior research progress and proposal submissions. Determine faculty specifically for Warrior Research (VA).	11/19/2013 - Warrior Project underway. **Target Met:** Evaluation - Met Target **Reporting Period:** 2012 - 2013	02/27/2014 - Warrior less pursued than intended, but support of Infectious Diseases initiative assists VA and UMU.
Admin (VPAA) - Office of Research Programs - Coordinate Records 12-13 - Maintain and analyze essential records in coordination with the Research Foundation of SUNY and the Operations Manager of ESF: Matching commitments, reporting and close-out, USDA Current Research Administration System (CRIS), McIntire-Stennis Research Program, grant/contract authorization, compliance and status of at-risk accounts.	**Measure:** COEUS module completion. **Data Source:** Data Generated by Unit **Target:** Eight ORP personnel completing modules.	11/19/2013 - COEUS implementation delayed. E-certification begun. Time/Attendance begun. **Target Met:** Evaluation - Met Target **Reporting Period:** 2012 - 2013	02/27/2014 - Continue E-Certification ramp-up.
	Measure: Completion of checklist, particularly with regard to budget guidelines. **Target:** 85% completion of budget checklist by	02/27/2014 - Approximately 40% completion **Target Met:** Evaluation - Did Not Meet Target **Reporting Period:** 2012 - 2013	02/27/2014 - Revise and reassess checklist and means of communication

Unit Goals	Key Performance Indicators & Targets / Tasks	Results	Action & Follow-Up
Action Year(s): 2012 - 2013 **Action Status:** Active	faculty. **Measure:** Strengthen McIntire-Stennis Program		
Admin (VPAA) - Office of Research Programs - ESF Research 12-13 - Facilitate the breadth and depth of ESF research. **Action Year(s):** 2012 - 2013 **Action Status:** Active	**Measure:** Number of responses by seed grant applicants. **Target:** 100% responses by seed grant applicants.	11/19/2013 - Seed Grant quality enhanced. **Target Met:** Evaluation - Met Target **Reporting Period:** 2012 - 2013	02/27/2014 - Major effort for ESF to co-lead SUNY/RF 4E Program $1M/year
	Measure: Number new entities launched. **Target:** Three new entities developed.	11/19/2013 - Spotlight on Research large turnout and high quality posters. **Target Met:** No Evaluation - Data Point **Reporting Period:** 2012 - 2013	02/27/2014 - Further highlight undergraduate research and research opportunities
	Measure: Publications normalized by expenditure dollar. **Target:** 200/$15.1 M.	11/19/2013 - 259 papers in 2012 - relationship between publications and expenditures plotted. **Target Met:** No Evaluation - Data Point **Reporting Period:** 2012 - 2013	
	Measure: Number of space planning events or projects. **Target:** Three large space planning events or projects (i.e., Greenhouses, Illick CIRTAS, ISMM-Baker Lab).	11/19/2013 - Completion of CIRTAS and TIBS facilities ($1.47M). Terry Ettinger on assignment and Greenhouse plan; Arthur Stipanovic and Biofuels CoE equipment ordered; Art Stipanovic and Biotech equipment ordered. **Target Met:** Evaluation - Met Target **Reporting Period:** 2012 - 2013	02/27/2014 - Labs commissioned in March 2014
	Measure: Number of Submitted Proposals **Data Source:** Data Generated by Unit **Target:** 280 proposals	02/27/2014 - Submitted 285 proposals. **Target Met:** Evaluation - Met Target **Reporting Period:** 2012 - 2013	02/27/2014 - Team with SUNY and particularly Binghamton and Albany 4E Program for large proposals. Promote ESF as a major player SUNY Research (Research Council).

Unit Goals	Key Performance Indicators & Targets / Tasks	Results	Action & Follow-Up
Admin (VPAA) - Office of Research Programs - Highlight and Clarify 12-13 - Highlight and clarify research accomplishments and technological innovation. **Action Year(s):** 2012 - 2013 **Action Status:** Active	**Measure:** Center recognition and assessment (meetings with Directors). **Target:** Special recognition at ESF and SUNY Levels of one Center or Institute.	11/19/2013 - Center recognition and symposium deferred. **Target Met:** Evaluation - Did Not Meet Target **Reporting Period:** 2012 - 2013	
	Measure: Patent and License Productivity. **Target:** 10 NTD?s, 1 new patent, and 1 new license.	11/19/2013 - 1 New Patent, 6 Disclosures and 2 Licenses or License Option **Target Met:** No Evaluation - Data Point **Reporting Period:** 2012 - 2013	11/19/2013 - Monitor licensing & determine effectiveness. New EIP on funding business relationships. Total income $35,682.
	Measure: Creation of new Center ?Showcase?. **Target:** Host biennial symposium of Centers and Institutes, in addition to current research events.	11/19/2013 - Continue to work with Committee on Research with Spotlight on Research and Exemplary Researcher Award (2013-T. Amidon). Biennial centers/institutes symposium deferred for now. **Target Met:** No Evaluation - Data Point **Reporting Period:** 2012 - 2013	
Admin (VPAA) - Office of Research Programs - Manage Budget 12-13 - Manage and strategically increase the budget derived from indirect returns, agency service fees, investment income and license fees to operate the Office of Research Programs and directly fund research initiatives. **Action Year(s):** 2012 - 2013 **Action Status:** Active	**Measure:** New relationships (MOU?s, Institutes) created, and joint research projects initiated. **Target:** $17.0 M expenditures $2.7 M indirect 20.75% IDC:DC.	11/19/2013 - Completion of connection with NHP and UFI. Initiation of new relationship with OEI. Cabinet Metrics: Expenditures: $14.4M, IDC: $19.1M, Proposal Volume: $68.8M, Number Proposals: 281, Base Proposal Yield: 26.7% **Target Met:** No Evaluation - Data Point **Reporting Period:** 2012 - 2013	11/19/2013 - Facilitate business connectivity with research programs. New EIR Program is boost to student IP.
		11/19/2013 - Completion of connection with NHP and UFI. Initiation of new relationship with OEI. **Target Met:**	02/27/2014 - Seek clarification of budget and new Advisory Board for NHP. Seek coop grants with UFI

Unit Goals	Key Performance Indicators & Targets / Tasks	Results	Action & Follow-Up
		Evaluation - Met Target **Reporting Period:** 2012 - 2013	and co-sponsor Onondaga Lake Forum
	Measure: Utilization of Binghamton HUB. **Target:** Increased confidence in value added from expenditures on patents and licenses.	11/19/2013 - Upgrade in IP service from Binghamton HUB. Major upgrade in speed and service. **Target Met:** Evaluation - Met Target **Reporting Period:** 2012 - 2013	02/27/2014 - Increased activity with Binghamton IP team.
	Measure: New license income. **Target:** 1 new license identified.		
	Measure: Compliance enhancement. **Target:** 80% of faculty and staff responding to enhanced compliance atmosphere.		
Admin (VPAA) - Office of Research Programs - College Policy Recommendations 12-13 - Draft and recommend College policies to facilitate and enhance research activity, such as responsibilities of PI and Co-PI, license income utilization, responsible conduct of research, and allocation of indirect funds. **Action Year(s):** 2012 - 2013 **Action Status:** Active	**Measure:** Policy drafts/revisions. **Target:** Four new or revised policies.	11/19/2013 - One policy (Purchasing) previewed to faculty. Initiation of compliance policy and planning. **Target Met:** No Evaluation - Data Point **Reporting Period:** 2012 - 2013	11/19/2013 - Draft policies on Conflict of Interest, Appropriate Expenditures, TBA/Suggested
	Measure: Policies Booklet and website; compliance theme in Mentoring. **Target:** Enhanced compliance atmosphere and Respect on campus.	02/27/2014 - Ongoing **Target Met:** Evaluation - Met Target **Reporting Period:** 2012 - 2013	02/27/2014 - Compliance staff sought
	Measure: Policy accessibility and highlighting. **Target:**	02/27/2014 - Review and revise website **Target Met:** Evaluation - Did Not Meet Target	

Unit Goals	Key Performance Indicators & Targets / Tasks	Results	Action & Follow-Up
	Positive feedback from faculty on new policies and access.	**Reporting Period:** 2012 - 2013	
Admin (VPAA) - Office of Research Programs - Accessible College Services 12-13 - Provide a visible and accessible set of College services. **Action Year(s):** 2012 - 2013 **Action Status:** Active	**Measure:** Utilization rate of Research Times. **Target:** Utilization rate by 40% of faculty and graduate students.	11/19/2013 - Actual numbers of Research Times (RT) users remains unknown. New workshop sessions delivered to graduates, faculty in four departments. Research Guide was revamped. **Target Met:** No Evaluation - Data Point **Reporting Period:** 2012 - 2013	11/19/2013 - Compare RT and Guide to University of Michigan and Stony Brook University. Return Guide to ORP website.
	Measure: Recognition and utilization of ATS. **Target:** Increase by 10% the number of faculty and students utilizing A&TS; host one open house to highlight capacities.		
Admin (VPAA) - Office of Research Programs - ESF Research 13-14 - Facilitate the breadth and depth of ESF research. **Action Year(s):** 2012 - 2013 **Action Status:** Active	**Measure:** Number of responses by seed grant applicants. **Target:** 100% responses by seed grant applicants.		
	Measure: Number new entities launched. **Target:** Three new entities developed.		
	Measure: Publications normalized by expenditure dollar. **Target:** 200/$15.1 M.		
	Measure: Number of space planning events or projects. **Target:**		

Unit Goals	Key Performance Indicators & Targets / Tasks	Results	Action & Follow-Up
	Three large space planning events or projects (i.e., Greenhouses, Illick CIRTAS, ISMM-Baker Lab).		

Appendix 6 – Program Assessment Report (2012-2013)

Unit Assessment Report - Four Column

SUNY - College of Environmental Science and Forestry

Program (CHEM) - Chemistry BS

Program Learning Outcomes	Measures & Targets / Tasks	Results	Action & Follow-Up
Program (CHEM) - Chemistry BS - Fundamental Chemistry Principles 12-13 - A sound understanding of the fundamental chemical principles and underlying theories in the core areas of chemistry (analytical, organic, inorganic, physical) with an emphasis on critical thinking and problem-solving. **Outcome Year(s):** 2012 - 2013 **Start Date:** 05/25/2010 **Outcome Status:** Inactive	**Measurement Scale:** Course grade of C+ or better in FCH 150-153, FCH 221-224, FCH 360-361, and FCH 380-381. **Assessment Method:** Course Grade **Target:** 80% of students at C+ or better	08/13/2013 - In seven of eleven courses for which data was reported our chemistry majors achieved a C+ or better. In three of the four courses in which this target was not met, it was nearly met (75% of students obtained C+ or better) . No data was obtained for FCH 381: Analytical Chemistry II, FCH 325: Organic Chemistry III, or FCH 384: Spectrometric Identification of Organic Compounds. **Target Met:** No Evaluation - Data Point **Reporting Period:** 2012 - 2013 **Related Documents:** 2013 Core courses plot.xlsx	
	Measurement Scale: Standardized exams designed by the American Chemical Society in General Chemistry and Inorganic Chemistry **Assessment Method:** Exam/Quiz - Standardized **Target:** Class average and median above national average and median	08/26/2013 - Data not collected. **Target Met:** No Evaluation - Data Point **Reporting Period:** 2012 - 2013	
	Measurement Scale: Evaluation of knowledge of Fundamental Chemical Principles in FCH 498 (Senior Research) 1-5 scale 1=Poor 3=Average 5= Outstanding **Assessment Method:** Capstone Assignment/Project **Target:** Average of 3.5	08/13/2013 - The average on the Research Proposal/Final Report was 3.7. **Target Met:** No Evaluation - Data Point **Reporting Period:** 2012 - 2013	

Program Learning Outcomes	Measures & Targets / Tasks	Results	Action & Follow-Up
	Measurement Scale: Rated performance in Lab in FCH 498 (Senior Research) 1-5 scale 1= Poor 3= Average 5=Outstanding **Assessment Method:** Capstone Assignment/Project **Target:** Average of 3.5 or better	08/13/2013 - Performance in Lab averaged 4.3 **Target Met:** No Evaluation - Data Point **Reporting Period:** 2012 - 2013	
Program (CHEM) - Chemistry BS - Fundamental Principles in Specialties 12-13 - A sound understanding of the fundamental chemical principles, underlying theories, and applications of one of the departmental specialties (biochemistry/natural products, environmental, polymer). **Outcome Year(s):** 2012 - 2013 **Start Date:** 05/25/2010 **Outcome Status:** Inactive	**Measurement Scale:** For students in the Environmental Chemistry option, grades in FCH 510, 511, and 515. For students in the Polymer Chemsitry option, grades in FCH 550, 551, and 552. For students in the Biochemistry option, grades in FCH 530, 531, and 532. **Assessment Method:** Course Grade **Target:** 80% of students with C+ or better	08/13/2013 - The target was only met in FCH 511, FCH 531, and FCH 550. **Target Met:** No Evaluation - Data Point **Reporting Period:** 2012 - 2013 **Related Documents:** specialty courses.doc	
	Measurement Scale: Rated perfromance in FCH 498 (Senior Research) 1-5 scale 1=Poor 3=Average 5=Outstanding **Assessment Method:** Capstone Assignment/Project **Target:** Average of 3.5 or better	08/26/2013 - The average was 3.8. **Target Met:** No Evaluation - Data Point **Reporting Period:** 2012 - 2013	
	Measurement Scale: Standardized Exam in Biochemistry designed by the American Chemical Society **Assessment Method:** Exam/Quiz - Standardized **Target:** Average and median above national average and median	08/26/2013 - No data collected. **Target Met:** No Evaluation - Data Point **Reporting Period:** 2012 - 2013	

Program Learning Outcomes	Measures & Targets / Tasks	Results	Action & Follow-Up
Program (CHEM) - Chemistry BS - Competency in Tools 12-13 - Competencies in the various tools required for the successful practice of chemistry: math, statistics, computer applications, information technology, etc, including the ability to critically evaluate the chemical literature as applied to their disciplines and to analyze data using appropriate tools. **Outcome Year(s):** 2012 - 2013 **Start Date:** 05/25/2010 **Outcome Status:** Inactive	**Measurement Scale:** Rated performance in this area in FCH 498 (Senior Research) 1-5 scale 1=Poor 3=Average 5=Outstanding **Assessment Method:** Capstone Assignment/Project **Target:** Averge of 3.5 or better	08/24/2013 - The average performance in Lab was rated a 4.1, while performance on the written research report was a 3.3 (below the target). **Target Met:** No Evaluation - Data Point **Reporting Period:** 2012 - 2013	
Program (CHEM) - Chemistry BS - Communication Skills 12-13 - The ability to communicate effectively orally and in writing to both technical and general audiences. **Outcome Year(s):** 2012 - 2013 **Start Date:** 05/25/2010 **Outcome Status:** Inactive	**Measurement Scale:** Research Proposal Final Report in FCH 498 (Senior Research) 1-5 scale 1=Poor 3= Average 5=Outstanding **Assessment Method:** Capstone Assignment/Project **Target:** Average of 3.5 or better	08/24/2013 - Performance in the laboratory was rated a 5.0, while performance on the written report was rated at 3.9. **Target Met:** No Evaluation - Data Point **Reporting Period:** 2012 - 2013	
	Measurement Scale: The graduating seniors meet as a group with the Department Chair to discuss issues. The relevant issues here are 1) training in writing 2) training in oral communication No formal survey is taken, rather, the Department Chair summarizes results as 4 - exceeded expectations 3 - met expectations 2 - met most expectations 1 - expectations not met **Assessment Method:** Survey of Students	09/02/2013 - No data collected. **Target Met:** No Evaluation - Data Point **Reporting Period:** 2012 - 2013	

Program Learning Outcomes	Measures & Targets / Tasks	Results	Action & Follow-Up
	Target: 3 (met expectations)		
Program (CHEM) - Chemistry BS - Application & Critical Thinking 12-13 - The ability to effectively apply fundamental chemical principles and critical thinking in achieving the objectives of an integrative experience such as an internship or independent research project. **Outcome Year(s):** 2012 - 2013 **Start Date:** 05/25/2010 **Outcome Status:** Active	**Measurement Scale:** Rated performance in this area in FCH 498 (Senior Research) 1-5 scale 1=Poor 3=Average 5=Outstanding **Assessment Method:** Capstone Assignment/Project	08/24/2013 - This was rated 3.2 in lab and 3.7 on the written report. **Target Met:** No Evaluation - Data Point **Reporting Period:** 2012 - 2013	
Program (CHEM) - Chemistry BS - Awareness of impacts 12-13 - An advanced awareness of the ethical impact of chemical science upon society and the global environment. **Outcome Year(s):** 2012 - 2013 **Start Date:** 05/25/2010 **Outcome Status:** Inactive	**Measurement Scale:** Rated performance in FCH 498 (Senior Research) 1-5 scale 1=Poor 3= Average 5=Outstanding **Assessment Method:** Capstone Assignment/Project	08/24/2013 - This was rated a 5.0 in lab and a 4.4 on the written report. Note that there were lots of reports of "N/A". **Target Met:** No Evaluation - Data Point **Reporting Period:** 2012 - 2013	
	Measurement Scale: The graduating seniors meet as a group with the Department Chair to discuss issues. The relevant issues here are 1) ethics No formal survey is taken, rather, the Department Chair summarizes results as 4 - exceeded expectations 3 - met expectations 2 - met most expectations 1 - expectations not met **Assessment Method:** Survey of Students **Target:** 3 (met expectations)	09/02/2013 - No data collected. **Target Met:** No Evaluation - Data Point **Reporting Period:** 2012 - 2013	

Program Learning Outcomes	Measures & Targets / Tasks	Results	Action & Follow-Up
Program (CHEM) - Chemistry BS - Fundamental Chemistry Principles 13-14 - A sound understanding of the fundamental chemical principles and underlying theories in the core areas of chemistry (analytical, organic, inorganic, physical) with an emphasis on critical thinking and problem-solving. **Outcome Year(s):** 2012 - 2013 **Start Date:** 05/25/2010 **Outcome Status:** Inactive	**Measurement Scale:** Course grade of C+ or better in FCH 150-153, FCH 221-224, FCH 360-361, and FCH 380-381. **Assessment Method:** Course Grade **Target:** 80% of students at C+ or better		
	Measurement Scale: Standardized exams designed by the American Chemical Society in General Chemistry and Inorganic Chemistry **Assessment Method:** Exam/Quiz - Standardized **Target:** Class average and median above national average and median		
	Measurement Scale: Evaluation of knowledge of Fundamental Chemical Principles in FCH 498 (Senior Research) 1-5 scale 1=Poor 3=Average 5= Outstanding **Assessment Method:** Capstone Assignment/Project **Target:** Average of 3.5		
	Measurement Scale: Rated performance in Lab in FCH 498 (Senior Research) 1-5 scale 1= Poor 3= Average 5=Outstanding **Assessment Method:** Capstone Assignment/Project **Target:**		

Program Learning Outcomes	Measures & Targets / Tasks	Results	Action & Follow-Up
	Average of 3.5 or better		
Program (CHEM) - Chemistry BS - Fundamental Principles in Specialties 13-14 - A sound understanding of the fundamental chemical principles, underlying theories, and applications of one of the departmental specialties (biochemistry/natural products, environmental, polymer). **Outcome Year(s):** 2012 - 2013 **Start Date:** 05/25/2010 **Outcome Status:** Active			
Program (CHEM) - Chemistry BS - Competency in Tools 13-14 - Competencies in the various tools required for the successful practice of chemistry: math, statistics, computer applications, information technology, etc, including the ability to critically evaluate the chemical literature as applied to their disciplines and to analyze data using appropriate tools. **Outcome Year(s):** 2012 - 2013 **Start Date:** 05/25/2010 **Outcome Status:** Active	**Measurement Scale:** Rated performance in this area in FCH 498 (Senior Research) 1-5 scale 1=Poor 3=Average 5=Outstanding **Assessment Method:** Capstone Assignment/Project **Target:** Averge of 3.5 or better		
Program (CHEM) - Chemistry BS - Communication Skills 13-14 - The ability to communicate effectively orally and in writing to both technical and general audiences. **Outcome Year(s):** 2012 - 2013 **Start Date:** 05/25/2010 **Outcome Status:**	**Measurement Scale:** Research Proposal Final Report in FCH 498 (Senior Research) 1-5 scale 1=Poor 3= Average 5=Outstanding **Assessment Method:** Capstone Assignment/Project **Target:**		

Program Learning Outcomes	Measures & Targets / Tasks	Results	Action & Follow-Up
Active	Average of 3.5 or better **Measurement Scale:** The graduating seniors meet as a group with the Department Chair to discuss issues. The relevant issues here are 1) training in writing 2) training in oral communication No formal survey is taken, rather, the Department Chair summarizes results as 4 - exceeded expectations 3 - met expectations 2 - met most expectations 1 - expectations not met **Assessment Method:** Survey of Students **Target:** 3 (met expectations)		
Program (CHEM) - Chemistry BS - Application & Critical Thinking 13-14 - The ability to effectively apply fundamental chemical principles and critical thinking in achieving the objectives of an integrative experience such as an internship or independent research project. **Outcome Year(s):** 2012 - 2013 **Start Date:** 05/25/2010 **Outcome Status:** Active	**Measurement Scale:** Rated performance in this area in FCH 498 (Senior Research) 1-5 scale 1=Poor 3=Average 5=Outstanding **Assessment Method:** Capstone Assignment/Project		
Program (CHEM) - Chemistry BS - Awareness of impacts 13-14 - An advanced awareness of the ethical impact of chemical science upon society and the global environment. **Outcome Year(s):** 2012 - 2013 **Start Date:**	**Measurement Scale:** Rated performance in FCH 498 (Senior Research) 1-5 scale 1=Poor 3= Average 5=Outstanding **Assessment Method:** Capstone Assignment/Project		

Program Learning Outcomes	Measures & Targets / Tasks	Results	Action & Follow-Up
05/25/2010 **Outcome Status:** Active	**Measurement Scale:** The graduating seniors meet as a group with the Department Chair to discuss issues. The relevant issues here are 1) ethics No formal survey is taken, rather, the Department Chair summarizes results as 4 - exceeded expectations 3 - met expectations 2 - met most expectations 1 - expectations not met **Assessment Method:** Survey of Students **Target:** 3 (met expectations)		