Assessment of Institutional Effectiveness and Student Learning at ESF

Report to Middle States Commission on Higher Education

March 2009

ESF

State University of New York
College of Environmental Science and Forestry

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INTRODUCTION

In response to correspondence dated November 7, 2007 from Jessica S. Kozloff of Middle States, this monitoring report documents the development and implementation of a sustained process for the assessment of student learning outcomes (Standard 14) and the assessment of institutional effectiveness (Standard 7).

Assessment efforts at ESF for institutional effectiveness and student learning outcomes follow parallel paths intersecting at several points through administrative interactions (see Figure 1). Our institutional mission and goals provide the over-arching focus of all activities at ESF. Assessment of institutional effectiveness and student learning outcomes provide invaluable data and opportunities to adjust programs and organization of administrative efforts to better achieve our institutional goals. The regular and varied interaction among professional staff, faculty, and administrators in assessment as illustrated in Figure 1 demonstrate the integration of assessment in the ESF organizational culture.
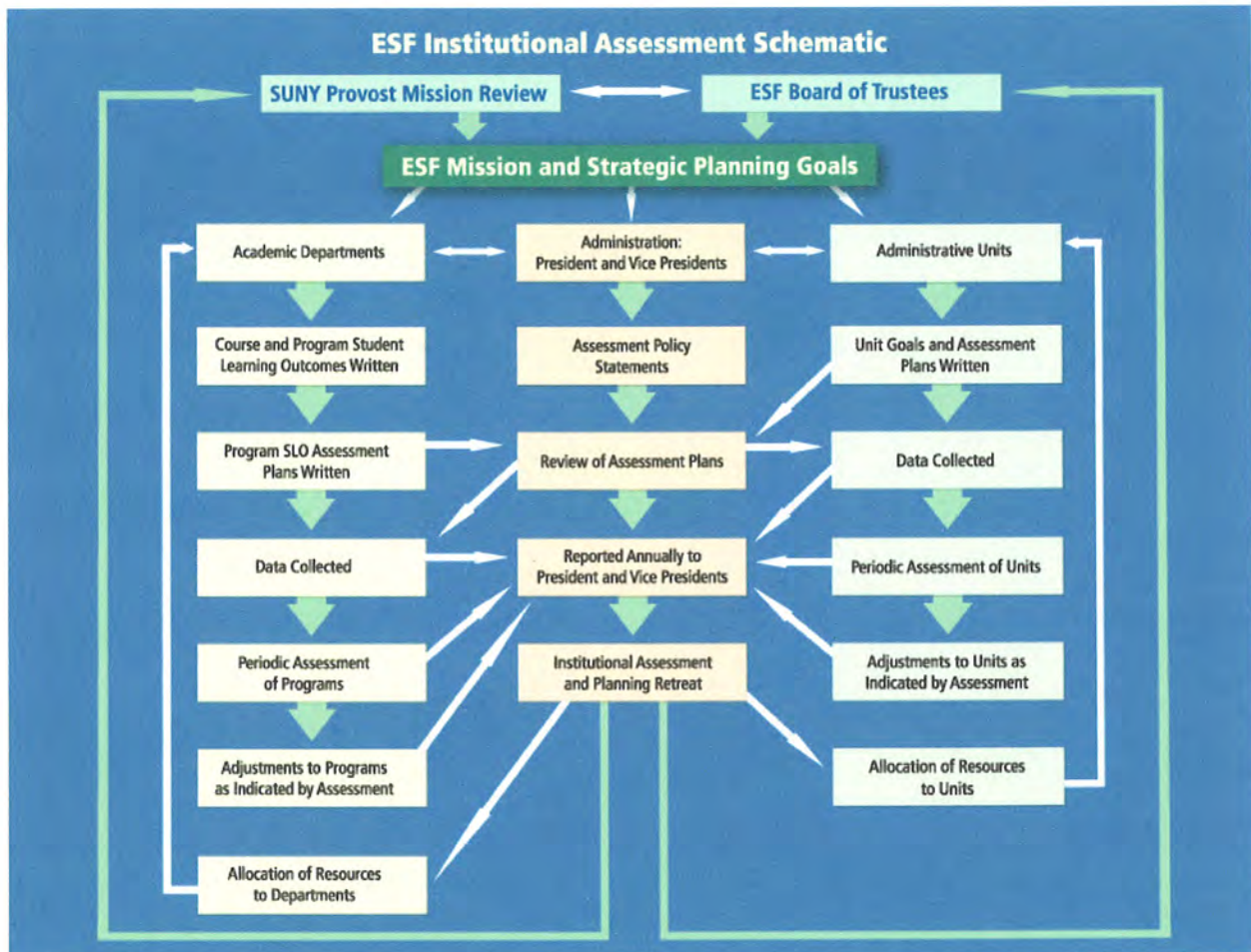
Figure 1. Overview of organization of institutional assessment at SUNY ESF

This report is organized in two main parts: the first focuses on Standard 7 and the second documents activities on Standard 14. In each part we document the history of assessment efforts including both processes and results, providing specific examples of actions taken. This is followed by a full description of our current assessment efforts. After the stimulating visit from MSHEC Vice President Linda Suskie in June 2008, we undertook a campus-wide endeavor to upgrade and formalize our approach to assessing student learning outcomes. We hope to exemplify current best practices and to meet MSHEC expectations.

Part I
Focusing on Institutional Effectiveness
Standard 7

SUNY-ESF's Strategic Planning Efforts
SUNY-ESF's planning and assessment activities are grounded in our mission, "to advance knowledge and skills and to promote the leadership necessary for the stewardship of both the natural and designed environments." Institutional planning is the prerequisite for creating and monitoring institutional effectiveness.

The College's *Vision 2020* documents the long range strategic planning of the institution and can be found at http://www.esf.edu/vision2020/. When completed in February 2003, the time horizon for planning was 17 years. This strategic plan examines all facets of the organization including academics, student life, administration, and fund raising with seven over-arching goals tying these facets together. This series of strategic planning goals and objectives are tied to the institution's mission. *Vision 2020* has served as a vehicle for the articulation of institutional goals in several key areas ranging from academic excellence to responding to the needs of society. The strategic planning process was broadly participatory and focuses on action-oriented goals that inform, and are informed by, measurable objectives. Because campus involvement in the initial plan was extensive, the goals reach across all areas of the institution.

The *Vision 2020* Strategic Plan acts as the foundation and framework for assessment of Institutional Effectiveness. The written and malleable *Vision 2020* plan looks outward and is focused on keeping the institution in step with the changing environment. The process is kept up-to-date through an annual retreat of the College's leadership where ESF's progress toward the goals through its strategies is evaluated. As can be seen in Appendix 1 *SUNY ESF Annual Institutional Strategic Planning Review and Update*, the strategic planning is focused around the mission and goals of the college. A subsequent annual presentation of this update is made by the College President to the faculty and College Board of Trustees. Figure 2 below clearly shows the interplay of planning, Institutional Effectiveness Assessment and Student Learning Outcomes Assessment at SUNY-ESF.
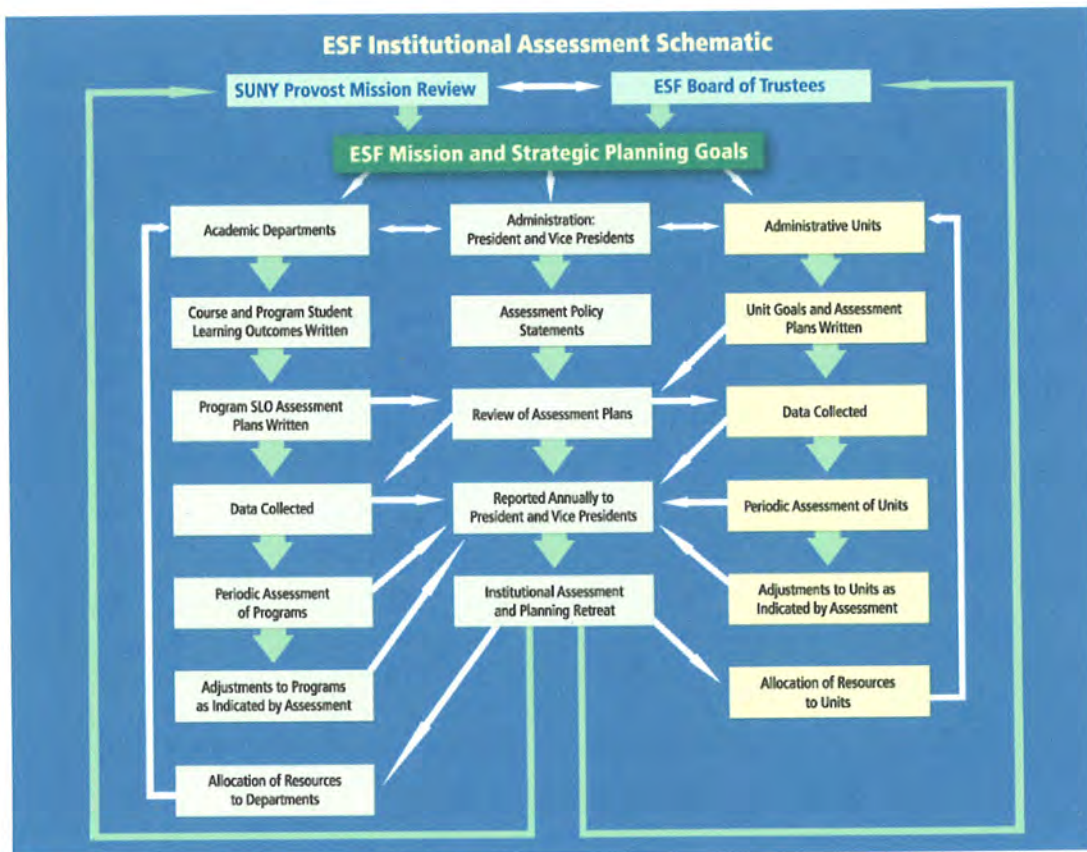
Figure 2. ESF's institutional assessment schematic, highlighting administrative unit assessment efforts on the right side of the diagram.

SUNY-ESF Assessment of Institutional Effectiveness

SUNY-ESF has an on-going, robust assessment process examining institutional effectiveness that addresses Middle States Standard 7:

> The institution has developed and implemented an assessment plan and process that evaluates its overall effectiveness in: achieving its mission and goals; implementing planning, resource allocation, and institutional renewal processes; using institutional resources efficiently; providing leadership and governance; providing administrative structures and services; demonstrating institutional integrity; and assuring that institutional processes and resources support appropriate learning and other outcomes for its students and graduates.
>
> (This abbreviated description is from Middle States' *Candidacy: Handbook for Applicants and Candidates for Accreditation*)

Policy Statement on Assessment of Institutional Effectiveness

The following policy statement, communicated to the campus community, confirms administrative commitment to assessment of institutional effectiveness at ESF.

Assessment is an integral part of ESF's commitment to the continuous improvement of all functions that contribute to fulfilling the institution's mission – to advance knowledge and skills to promote the leadership necessary for stewardship of both the natural and designed environments.

Assessment specifically measures success in meeting defined goals at the institutional and administrative/academic unit levels. Unit level goals should be directly linked to and support the larger institutional goals to ensure that all campus elements are working with common purpose.

Assessment results should be obtained and evaluated through thoughtfully planned processes. They should be used to develop annual work plans that move the institution forward in meeting its mission and goals.

As a research university, in which objective empirical observations are valued as the foundation of knowledge, we recognize that data-based assessment is necessary for self-understanding and advancement, and thus essential for the growth and vibrancy of the institution.

At ESF the following statements guide our efforts.

> ❖ *All administrative units shall have a mission statement, goals, outcomes and a plan to assess them.*
> ❖ *All assessment plans shall conform to Middle States Higher Education Commission standards.*
> ❖ *All assessment plans shall conform to the Mission and Goals of the SUNY-ESF strategic plan.*
> ❖ *All administrative units shall articulate assessment efforts to be reviewed annually. It is expected that data collected, assessments conducted, response to assessments, and adjustments to assessment plans will be discussed annually with the respective Vice Presidents overseeing each unit.*
> ❖ *All assessment plans and results shall be made publicly available on the ESF assessment web page.*

Strategic Planning Foundation for Assessment

Assessment at SUNY-ESF follows the paths indicated in Figure 1: ESF's Institutional Assessment Schematic. The College takes a systematic and cyclical approach to its planning and assessment efforts. SUNY-ESF's assessment activities evaluate its effectiveness in achieving its mission and goals described in the College's strategic planning document, *Vision 2020,* on an annual basis. Goals from *Vision 2020* set the stage for annual individual unit goals to be established and unit assessment plans to be written.

Administrative Unit Goals and Plans for Assessment

Assessments of institutional effectiveness are conducted at the department level at the College, with the results being passed upward to the Vice President overseeing each respective area. Leadership for institutional assessment at the unit level flows from each unit's Vice President as well as from the President. Two benefits of this planned coordination of Institutional Effectiveness assessment are that there are more systematic follow-ups with those offices that are lagging in their assessment duties, and there is an impetus for administrators to put their

assessment data to actionable use. These plans appear on the Institutional Effectiveness website. (http://www.esf.edu/ie/) and two examples are attached in Appendix 2.

There are a large number of targets and strategies offered to reach the College's goals in *Vision 2020*. From these College and Unit Goals, a smaller set of targeted performance measures are collected, reviewed, evaluated and reported on annually. Units implement strategies to achieve those goals through Programs, Services and Initiatives. These unit plans are shared periodically with the President and Vice Presidents for review. Changes are made at the unit level as a result of assessment. The College reviews the results of annual assessments of metrics and indicators to improve programs and services and to inform planning and resource allocation decisions.

The Assessment Plan uses performance indicators or metrics that are monitored in order to determine the health, effectiveness and efficiency of the institution. SUNY-ESF's approach to assessment relies on an appropriate mixture of quantitative and qualitative measures. Assessment ranges from the commonplace – individual performance reviews, surveys, faculty workload studies, and departmental reviews – to unique measures related to SUNY-ESF's mission and unusual resources. Measurement and analysis are at times comparative, longitudinal, and/or cross-sectional. Data collection is a mixture of decentralized collection and institutionally coordinated across the various campus units. Overall the process and plan is simple, practical for a college our size and detailed enough for the administrative units to truly use in decision-making.

Annual Assessment of Institutional Effectiveness looks at several factors. First, the College Goal being addressed is identified. The College considers the intended institutional effectiveness outcome to be assessed in a particular cycle and identifies the method of assessment for each outcome. The results of the assessment include a summary, an interpretation of the results and, if appropriate, an explanation of how the results were disseminated to key stakeholders for discussion. Finally an implementation plan is developed to identify any programmatic changes the college will make as a result to the assessment results. These are specific recommendations that relate directly to the outcome and results of assessment. The unit responsible for the action is identified along with any resources needed for the action implementation. The Annual Assessment Report for 2008-09 is found in Appendix 3.

Data Collection Drivers for Assessment
SUNY-ESF enjoys numerous external drivers for planning, data collection, assessment and evaluation. Many planning and assessment activities are triggered by the routine nature of our business including the requirements of the New York State Education Department, the State University of New York, and others. These data collection and evaluation opportunities are also used to write and evaluate administrative unit assessment plans and the College Annual Institutional Effectiveness Plan. These processes all feed into assessing the progress the college is making toward its stated goals and targets, and they drive decision-making.

The SUNY led Mission Review II (2005-2010) "Building an Expectation of Excellence" is a campus based, system-wide planning process. Through significant interaction with each campus, SUNY sets and tracks goals that build academic excellence in teaching, research and service across the system. ESF's Mission Review document is based on its Strategic Plan *Vision 2020*. Institutions are individually measured on their selected indicators which are evaluated on an annual basis relative to peer institutions and institutional aspirations. These evaluations provide the basis for periodic assessment of the success to which the system is achieving its higher education objectives and the degree to which individual colleges and universities are contributing to that success. More information on the SUNY Mission Review process can be found at http://www.suny.edu/provost/missionreview.cfm?navLevel=5. It is anticipated that SUNY ESF will be required to begin the process of updating its Mission Review Plan next year.

Every four years the State University is required to submit a "master plan" to the Board of Regents in compliance with New York State Education Law (Section 354). The SUNY *Masterplan 2004-08* describes the dynamic progress SUNY has made in implementing *Rethinking SUNY*, the blueprint document of the State University Board of Trustees. This Master Plan lays out in detail the planning processes through which the University engages each of its 64 campuses and is available at http://www.suny.edu/provost/Master%20Plan%202004-08%20(final).pdf. System-wide initiatives are described in this document as well as SUNY's approach to Strategic Planning, Mission Review II, and a performance-based budget allocation process. The College has not been required to update this document at this time.

New York State's Commission on Higher Education Report provides perspective for ESF's goals and aspirations in the context of the state as a whole (http://www.hecommission.state.ny.us/). The New York State Education Department routinely collects and reviews higher education statistical information which can be found at http://www.highered.nysed.gov/oris/statreports.htm. These data are used by the campus in planning and assessment activities.

Clearly the significant number of additional annual data collection requirements creates an opportunity to mine data for assessment. Centralized responsibility for response to these requests resides in the Office of Institutional Planning. These data is available to all units, the Vice Presidents, and the College President to help inform them in the assessment process. A listing of many of these instruments available to administrative units for Institutional Effectiveness Assessment appears on the Institutional Effectiveness website. http://www.esf.edu/ie/

SUNY plays an important Institutional Effectiveness Assessment function through a review of the college's annual budget request to ensure that the College is efficiently and effectively utilizing its resources. This review includes assessment of revenue and collections data at multiple times during the year.

<u>A Collaborative Process</u>
The Annual Institutional Assessment and Planning Retreat is a day-long working meeting bringing together all administrative directors, Vice Presidents, Deans and the President. The retreat has several purposes: To review the strategic planning benchmarks established for the previous year; to create benchmarks for the coming year; to examine and review the key measures of institutional effectiveness; and to provide an opportunity to "think big" and consider creative ways to enhance the College. The results of the retreat planning and assessment results are collected, edited and then distributed back to the Cabinet participants, but are also reviewed by the Faculty department chairs, at a faculty meeting and ultimately, the College Board of Trustees. Vice Presidents and unit heads update individual performance programs to show responsibility for certain outcomes and measures of success based on the retreat discussions. Components of the plan and assessment progress, successes, and new benchmarks appear in the College's SUNY mandated Annual Report that appears on the College website: http://www.esf.edu/annualreport/2008/.

A large number of metrics are examined each year during an annual retreat to gauge the progress of the plan at the individual department level. Institutional Assessment Metrics are a select group of metrics that are updated by the offices using this data for their own office planning (see http://www.esf.edu/ie/). These metrics are the basis for discussion of assessment during the College retreat and for administrative unit decision-making throughout their annual respective business cycles.

Assessment and Allocation of Resources
Assessment results often indicate changes that require new funding or a re-prioritization of existing funding. Minor adjustments often can be effected at the unit level at the College with minimal financial implications. Other funding for changes must be accommodated through the planning and budgeting process.

The Vice Presidents meet with the President on a weekly basis throughout the year through the Executive Cabinet, providing input for both the current and next fiscal year and to set the stage for the future. Many issues are discussed throughout the year including assessment information provided from the unit heads to the Vice Presidents, who then review that information with the President. Vice Presidents recommend funding to address particular problems or initiatives recommended on the basis of the assessment.

After the annual summer retreat, the President's executive cabinet, comprised of the Provost and Vice President of Academic Affairs, the Vice President for Administration, and the Vice President for Marketing and Enrollment Management, create the tactical planning for the near-term and out-years. This group identifies resources required, both in terms of personnel and financial, and provides a clear plan for the deployment of these resources. The President, on the basis of counsel from the Vice Presidents, ESF College Foundation and ESF Board of Trustees determines which initiatives will be advanced and funded.

Examples of Recent and On-going Assessment Activities
The College's Institutional Effectiveness Assessment process described above has yielded a number of significant institutional changes:

- Sustainability initiatives addressing several College goals were implemented over the past several years after *Vision 2020* was written. A Director of Renewable Energy Systems reporting directly to the President was hired and a campus sustainability committee established. They wrote strategic and assessment plans; presented them to the College Board of Trustees and have planned a Campus Forum to outline the campus sustainability plan for April 2009. ESF is among more than 90 college and university campuses that will participate in the pilot phase of a rating system for sustainability in higher education. The self-assessment system, called STARS (Sustainability Tracking, Assessment and Rating System), was launched in February 2008. Working with the SUNY Construction Fund, the College has secured funding for several projects directly related to the sustainability initiative. More information is available at http://www.esf.edu/ie/.

- The physical infrastructure of the College plays an important role in several College goals. ESF developed a campus master plan, with improved sustainability as a key goal. The plan was developed utilizing an inclusive community process of faculty, staff and students. The plan was presented to the College Board of Trustees and incorporates a campus wide, interconnected system of sustainability initiatives. Working with the SUNY Construction Fund, the College has secured funding for several projects directly related to the *Vision 2020* goals (see http://www.esf.edu/ie/.)

- Assessment of Career Services at the College resulted in a reorganization of that administrative area, funding for enhanced technology for on-line job searches, and significantly increased outreach to assist our students to secure internships and jobs (see http://www.esf.edu/career/).

- Work through the College's Retention Committee indicated a need to strengthen academic support services to increase graduation rates. The Committee's assessment resulted in the creation of The Academic Success Center through staff reorganization and significant financial and space investments. The Center's mission is to provide a variety of academic support services for students to help them realize their educational goals (http://www.esf.edu/students/success/asc.htm). The ASC offers peer tutoring, drop-in writing support, drop-in math support, success resources, a computer lab, and time management/study skill development.

- As a result of surveying prospective ESF freshmen and enrolled students, ESF plans to move from a Club Sports program to an Intercollegiate Athletics program. Funding was increased by $15K over the past few years to develop programs in soccer (2004) and golf (2007). The success of these sports in terms of interest and competition has resulted in this decision. The SUNY average number of intercollegiate sports offered is 14 sports and ESF will be moving toward 6 to 10 Division III teams. With this move, the College will have better opportunities for competition and recruiting. Within SUNY, these

programs are generally funded through dedicated athletic fees. ESF would hold a student referendum to implement such a fee and establish an Intercollegiate Athletics Board giving an opportunity for faculty and staff involvement. Plans are being made to join the National Association of Intercollegiate Athletics and would comply with their rules regarding recruitment and competition. More information on this initiative is located at http://www.esf.edu/students/sports/.

- The College's strategic planning efforts have identified the need for a major fundraising campaign to provide enhanced resources for student recruitment, retention, and academic innovation. In addition to funding specific projects, the campaign is strategically targeted to bolster the assets of the ESF College Foundation toward a goal of $100 million by fiscal year 2020. In 2008, the College Foundation invested $40,000 to conduct a campaign feasibility study to test a fundraising goal and project identification with a targeted list of potential campaign donors. The results of the study suggest a working campaign goal of $20 million to be raised over a period of five years. Specific projects to be included in the campaign include a student residence to be built and managed by the ESF College Foundation; a $6 million increase in scholarship funding for undergraduate and graduate students; a $5 million fund for academic innovation focused in the area of sustainability; and substantial improvements to research and student facilities on the main and remote campuses. The campaign will also seek to bolster unrestricted resources for the College Foundation. After concluding the feasibility study, the Foundation Board set aside $100,000 to fund campaign planning and nucleus fundraising. A campaign consultant has been retained and a campaign plan will be adopted by the Foundation Board in May 2009. It is anticipated that solicitation for leadership gifts will begin in July 2009, with a schedule to publicly announce the campaign in 2011 in conjunction with the 100th anniversary of ESF.

- For the past 98 years, ESF has relied on Syracuse University to provide housing for undergraduate students. As enrollment has grown at both institutions, Syracuse University has begun to cap the number of housing spaces available to ESF and has made a recent decision to relocate ESF freshman to residential facilities outside of the main campus. These policies are expected to have a positive impact on freshmen recruitment and the ability to grow enrollment to meet ESF goals. In addition to the impact on freshman, recruitment of transfer students is often stymied by the lack of availability of desirable rental housing near the College. To address these issues, the College has decided to construct and manage a dedicated ESF student residence through its associated 501(c) (3) organization, the ESF College Foundation. The College Foundation has identified an appropriate site for the residence to the west of campus and is near completion of the acquisition of the 18 privately-owned properties on this residential street. A development team, headed by nationally recognized student housing developer, Allen & O'Hara has been retained. A survey, phase 1 environmental impact study, and geo-technical study have been completed, along with a market study of ESF students indicating a high demand for housing. Informed by the market study and a team of ESF stakeholders, the architects will soon complete a schematic design of the

400+ bed residence with a total project cost of approximately $25 million. Demolition of the current structures is scheduled to begin in May 2010 allowing for the completion of the residence in August 2011.

- Through its assessment activities, it was determined that international students, and students desiring international experiences required additional institutional support to provide a better student experience and to best assure the safety of our students overseas. The College invested in this strategy, establishing an Office of International Education and hiring a coordinator. More information is available at http://www.esf.edu/international/default.htm.

Conclusion

There is a wealth of assessment activity occurring routinely at SUNY-ESF with results from assessment activities appearing to flow to the appropriate points of authority and adjustments being made in response to assessment findings. The decentralized nature of planning encourages broad participation in and responsibility for creating plans and following through on them. Through the annual strategic planning process, a centralized structure for assessment activity exists. Channels exist through which assessment findings flow efficiently and consistently to those who have the major responsibilities for planning, budgeting and governance.

Over the next five years, assessment results will continue to be used to enhance the effectiveness of the College and the quality of its academic programs. The Administrative Units of the College and the College as a whole will continue to conduct a comprehensive program of assessments for measuring institutional effectiveness. Examining our assessment through this monitoring report has drawn attention to areas where the College can improve its Institutional Effectiveness Assessment. These include reviewing assessment policies, requiring all administrative units to use assessment more strategically in their annual plans and better tying their unit goals to assessment. A review of the metrics culled from the strategic plan that the College focuses on for Institutional Assessment is planned. Synthesizing these unit plans and identifying the most meaningful areas for assessment into a descriptive plan and documenting their outcomes confirming to the proper Middle States standards will be a key component of the College's 2011 - 2012 Self Study.

Student Learning Assessment at ESF
Central to meeting the mission of the College of Environmental Science and Forestry, assessment of academic effort is an ongoing, dynamic and essential part of ESF life. Assessment of learning outcomes in some form has long been an integral component for departments with professional accreditation of programs and General Education Assessment required by the State University of New York. In addition to these formally documented processes, ESF has fostered a less formal but no less important process of assessment to periodically review and revise our courses, curriculum, and teaching methods. In recent years, assessment efforts have expanded to include all programs at ESF. Additionally, documentation and reporting requirements have evolved to become more explicit and transparent, serving the underlying need to provide accountability to our teaching efforts.

Evolution of Assessment at ESF, 2001 – 2007
Assessment took place in many forms across campus during the period of 2001 – 2007. Below we highlight a number of key activities and results of assessment in this period and provide links to further information on several items on the ESF website to demonstrate on-going assessment efforts from 2001 to 2007. We follow that with a summary of improvements in the past year and a description of institutional support for assessment of student learning outcomes.

Curriculum Oversight
At ESF the faculty govern curricular and academic policy decisions through the Committee on Instruction (COI) assisted by the Dean of Instruction and Graduate Studies. A formal process of proposal and review of all curricular additions and changes is followed by Committee approval to bring to the full Faculty for voting.

Faculty at ESF have long engaged in curricular improvement by adjusting programs and courses to better meet student learning outcomes. One reflection of these efforts is the nearly 300 course changes since 2001. Academic departments report these changes as evidence of their continued effort to improve student learning outcomes. On average about 40 course changes per year have been approved to reflect necessary adjustments to achieve student learning outcomes (see Figure 3). An average of 10 or 11 program changes are approved each year, including revisions to existing programs and the introduction of new programs. In recent years, four or five new academic policies were considered and approved most years. In addition, during this period more than 125 courses were dropped, as new courses were developed to better meet student learning objectives.
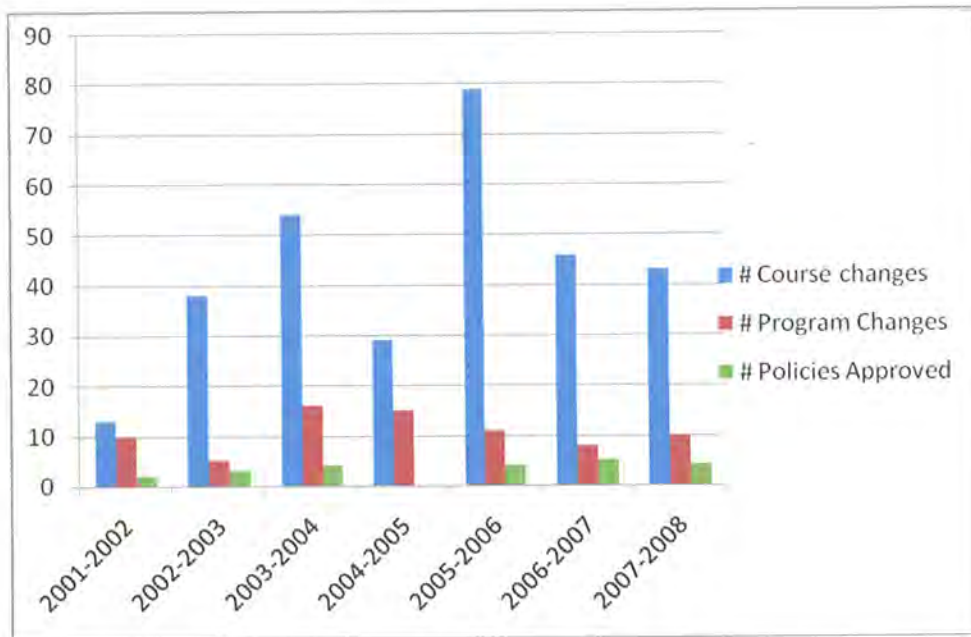
Figure 3. Curricular changes including addition of academic policies at SUNY ESF approved through the Faculty Governance Committee on Instruction, 2001- 2008.

General Education Assessment
General education assessment is embraced as a means of improving student learning and assuring accountability in fulfilling the College's commitment to offer high quality baccalaureate and associate degree programs and enriching educational experiences for all students. ESF assesses student learning outcomes in general education according to guidance presented in Standard 12, "General Education," of the Middle States Commission on Higher Education's *Design for Excellence, Handbook for Institutional Self Study*. Assessment of student learning outcomes in general education is predicated on the basis that each State University of New York campus manages its own general education assessment curriculum in concert with SUNY System general education assessment program. The following web page describes the SUNY System Administration assessment program:
(http://www.cortland.edu/gear/SUNYassmt_initiative_EXCSMRY.pdf).

The general education program at ESF is actively managed by the College Faculty through its Committee on Instruction and the Subcommittee on General Education assisted by the Dean of Instruction and Graduate Studies and the Associate Dean of Outreach and Instructional Quality. The basis for developing and sustaining the general education curricular courses is presented in the SUNY General Education Guidelines found at
(http://www.suny.edu/provost/GeneralEducation/course-guidelines-v2.pdf). ESF students must successfully complete one 3-credit course in the following categories: Mathematics, Natural Sciences, Social Sciences, American History, Western Civilization, Other World Civilizations, Humanities, Arts and Basic Communication. The faculty-approved list of general education courses offered to ESF students is found at
http://www.suny.edu/provost/generaleducation/courselist/ESFGERCourses.pdf. General

education courses are available at both ESF and Syracuse University (SU) with whom ESF has an Accessory Instruction contract. The SU courses extend, supplement and complement academic ESF's course work providing academic advisers and students with a broad base of courses to meet general education requirements and enhance the educational experience.

The program of general education assessment required by SUNY System Administration is prescribed in the College's *Plan for Assessing Student Learning Outcomes in General Education: Meeting Strengthened Campus-based Goals*, approved by both the ESF Faculty and by the SUNY System Administration's General Education Assessment Review (GEAR) group in 2006 and in revised form in 2007 (see Appendix 4). This plan calls for a 3-year cyclic review of Basic Communication, Critical Thinking, Mathematics, and the Academic Environment. With protocols specified in the campus plan, these assessments are undertaken using nationally-standardized *Collegiate Assessment of Academic Proficiency tests* (ACT CAAP) and the *National Survey of Student Engagement* (NSSE) contracted by SUNY System Administration. The Dean of Instruction and Graduate Studies and the Associate Dean of Outreach and Educational Quality administer the tests. Results are evaluated by the Subcommittee on General Education and shared with the relevant instructors and other faculty leaders including the Provost's Academic Council. Course and curriculum modifications are then made as needed. The latest assessment report is attached in Appendix 4.

In addition to ascribing to the current SUNY System general education assessment protocols, ESF has conducted additional assessment of general education. Outcomes-based assessment of the general education coursework categories above has been addressed in a 3-year cycle and includes each coursework area. Rubrics for these evaluations were created by ESF faculty who offer instruction in each topical subject (an example is attached in Appendix 4). The extensive and rich history of the impacts of assessment of writing and critical thinking on curriculum and academic program development at ESF is detailed at http://www.esf.edu/writingprogram/assesscampus.htm.
Products of assessment outcomes include establishment of the Writing Center on campus as part of the Academic Success Center, development of new writing and communication courses (e.g. CLL 190, *Writing and the Environment* and CLL 290, *Writing, Humanities and the Environment*), and promoting writing across the curricula.

SUNY Assessment of Majors and External Accreditation Efforts
General Education assessment is one of three SUNY assessment efforts in which we engage and with which we are in compliance. SUNY Assessment requirements include two other components which focus on student learning outcomes: program assessment of all academic programs across the State University; and strengthened campus-based assessment.

Guidelines for SUNY assessment can be found at the following web address: http://www.suny.edu/provost/Implem Guidelines.pdf and require external reviewers, identification of improvements made in previous assessments, and major findings of the current assessment and actions to be taken in response. Since 2001 all academic programs at ESF have benefitted from these SUNY assessment efforts. The summary reports of these

assessments may be found in Appendix 5. Table 1 shows the cycle of reviews between 2001 and 2007. The next cycle of reviews is scheduled to begin next year.

Table 1. Cycle of program assessments completed at ESF.

Academic Year	Program Name	Review Agency
2002-03	Forest Resources Management	Society of American Foresters
2002-03	Construction Management: Wood Products	Society of American Foresters & Soc. of Wood Sci. & Technology
2002-03	Paper Science & Engineering	Accreditation Board for Engineering and Technology
2004-05	Chemistry	American Chemical Society
2004-05	Environmental & Forest Biology	Selected Peer Group
2004-05	Environmental Studies	Selected Peer Group
2004-05	Forest Technology	Society of American Foresters
2005-06	Landscape Architecture	American Society of Landscape Architects
2006-07	Forest Engineering	Accreditation Board for Engineering and Technology
2006-07	Paper & Bioprocess Engineering	Accreditation Board for Engineering and Technology
2006-07	Construction Management & Engineering	American Council for Construction Education
2007-08	Environmental Science	Selected Peer Group

As noted in Table 1, many programs at ESF are evaluated by external accrediting agencies which include student learning outcome assessments in their reviews. Our engineering departments serve our campus as a model for assessing student learning outcomes. Last year, the Accreditation Board for Engineering and Technology accredited the engineering programs at ESF for the maximum period demonstrating full compliance with their high standards including assessment of student learning outcomes.

Assessment Results, 2001 - 2007
As a result of the assessment efforts described above, many changes have been made to courses and programs to improve the achievement student learning outcome goals. Table 2 summarizes examples of curricular changes as a result of assessment from 2001-2007. The narrative examples that follow further illustrate the results of our on-going assessment efforts.

Table 2. Selected results of assessment efforts, 2001-2007.

Academic Year	Program Name	Assessment Finding	Resulting Action
2002-03	Forest Resources Management	Need more integration of problem-solving and communication	Individual courses were adjusted and FOR 132 was redesigned to introduce this to freshman
2002-03	Construction Management: Wood Products	Low enrollment in program	Engaged advisory board; increased visits to transfer institutions and high schools
2002-03	Paper Science & Engineering	Need to integrate modern computing software into curriculum	Matlab now taught in APM 153, used in PSE 370, 371, 468, 477. WinGems used in PSE 480, 481, and 468.
2004-05	Chemistry	ACS certification could improve program	Curriculum review on how to increase lab experiences in physical and inorganic chemistry
2004-05	Environmental & Forest Biology	More even emphasis on writing and math skills in curriculum	Courses adjusted to include writing and math where needed
2004-05	Environmental Studies	Gaps in curriculum to meet learning outcomes	New courses developed and others adjusted
2006-07	Paper Engineering	External reviewers found assessment to be a strength of the program	None indicated
2007-08	Forest Engineering	ESF average on Fundamentals of Engineering exam below national average	New course was developed and is now being taught

- Our General Education Assessment of student learning outcomes in mathematics in 2005 identified a need for several program and course changes. The assessment stimulated the selection of a better instrument to test math skills upon entry to ESF, existing courses were adjusted to begin where our students were entering to build their skills, and new courses were added to achieve student learning outcomes. In addition to these changes, a Math Lab was created as a part of the Academic Success Center at ESF. The Math Lab is designed to assist students with Algebra, Pre-Calculus, Calculus, and other math courses taught at ESF. Students can drop-in with questions on homework or to gain clarification before a quiz or exam. The Math Lab will be assessed in the next academic year.

- The Writing Program at ESF has a long-standing record of formal assessment of learning outcomes as indicated above. One example of a change resulting from assessment of student writing skills is the development of Communications Handbooks by academic departments. The handbook developed by faculty in the Forest and Natural Resources

department may be viewed online at
www.esf.edu/fnrm/documents/FNRM_Communications_Handbook2008.pdf.

- The Landscape Architecture program includes a student learning outcome stating that students should be able to effectively communicate design ideas to a variety of audiences. Faculty and off-campus practitioners who were interviewing students for jobs identified the need to improve this communication through portfolio development, and presentation of themselves and the portfolio to potential employers. To address this need, a new course was developed (LSA 455/655). The course involves both faculty members and practitioners to provide students with the opportunity to practice as they learn. Initial feedback shows the course to be improving the achievement of this student learning outcome.

- The Chemistry Department began teaching a general chemistry course in the late 1990s, and students took a related lab course at Syracuse University (SU). Faculty assessment and exit interviews with students indicated that the SU lab course was not very effective in reinforcing what was taught at ESF. Faculty and students both felt that the learning outcomes related to laboratory skills were not achieving a desired level. As a result of this assessment, after 2001 an ESF lab sequence (FCH 151, 153) was developed and is now taught. Initial feedback suggests that students and faculty agree that it provides a better opportunity to meet the learning outcomes.

Involvement of Non-Faculty Constituencies
All departments have been directed to establish external advisory groups. Four of our eight academic departments are in the process of establishing advisory boards and four departments already engage regularly with these groups to help improve their programs. Some departments have long-standing relationships with external advisory boards. These groups provide an external overview of programs including assisting faculty with setting program level student learning outcomes, job preparation and placements, and fund raising. External advisory boards also provide valuable feedback on career successes and shortfalls of ESF graduates that may be addressed by our programs.

Students are engaged in every academic department in activities such as program development, assessment, faculty curriculum committees, and faculty search committees. At the course level students complete end-of-semester course evaluations that include specific questions developed by the instructor. Additionally, many faculty use mid-semester evaluations and informal weekly or bi-weekly assessment tools for feedback from students on everything from achievement of learning outcomes to design of the syllabus and effectiveness of specific class activities. Many departments also do exit interviews with students to gain student perspective on how well learning outcomes were met and overall satisfaction with programs.

Recent Assessment Improvements at ESF

Following an extremely beneficial meeting with MSHEC Vice President Linda Suskie in June 2008, we undertook a campus-wide effort to improve our assessment of student learning outcomes. The Provost initiated it by setting a goal that each academic program must have a written assessment plan that describes the student learning outcomes, assessment measures, timelines, targets, and results. All academic departments actively engaged their faculty members to develop these plans; in fact, more than 40% of all Syracuse campus faculty were actively engaged in development of these assessment efforts and all faculty members had opportunity to review plans at the department level. Figure 4 presents a flow chart of Institutional Assessment at ESF, highlighting assessment of student learning outcomes and assessment of institutional effectiveness. This chart shows the many steps and regular interaction between faculty and administration in implementing assessment at ESF.
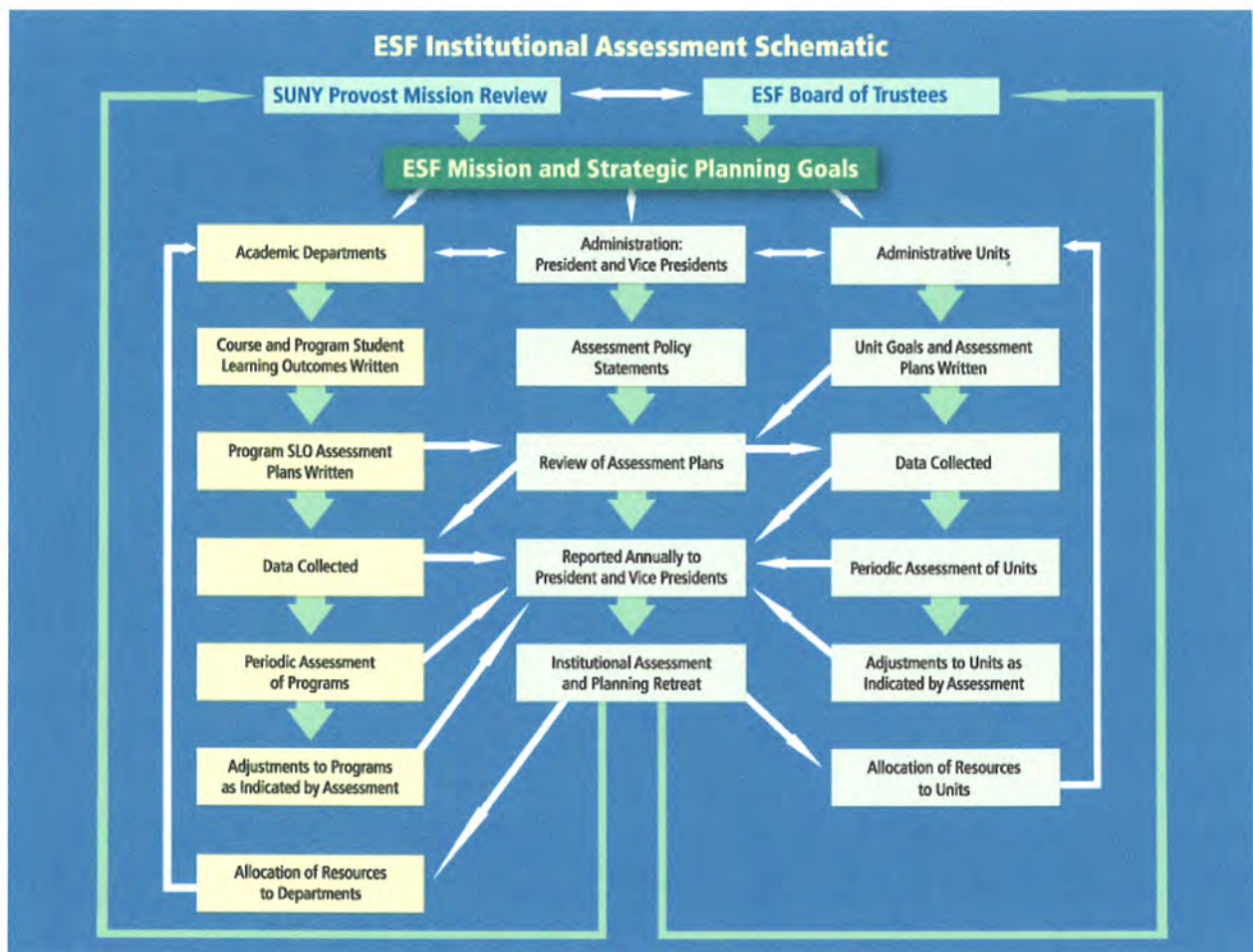
Figure 4. Organization of assessment efforts at ESF. Student learning outcomes assessment is highlighted on the left side of the diagram.

Several programs revised student learning outcomes and program requirements as a result of developing written program assessment plans as part of the campus-wide effort to improve assessment. These changes provide a solid foundation for improved assessment of student

learning outcomes as we move forward. Additionally, moving from a less formal approach to written plans that include specific assessment measures also directly resulted in curricular improvements. Faculty report that the process of writing these assessment plans revealed the need to adjust some programs and courses to allow for meaningful assessment of student learning outcomes.

All academic departments on campus now have written program assessment plans and are implementing them. All plans have been reviewed by the Provost's office. An example plan is attached in Appendix 6 and all others can be found on the web at: www.esf.edu/ie. This webpage is designed to communicate and enhance assessment efforts throughout the campus by providing useful resources for assessment at all levels.

To support on-going communication, Department Chairs are directed to describe assessment efforts in their annual reports of activity including data collected, assessments conducted, response to assessments, and adjustments to assessment plans. These efforts are to be publicly available on the ESF assessment web page.

Institutional Support
In addition to Faculty contributions to assessment at ESF, administrative leaders actively support the continued improvement of such efforts on campus. ESF leaders continue to demonstrate support for assessment and the attendant improvement it brings to the College. Implementing and monitoring progress on strategic plan initiatives (as referenced in the report of our efforts on assessment of institutional effectiveness, Standard 7) and the appointment of an Assistant to the Provost for Academic Initiatives, drawn from the faculty, to lead the further development of student learning assessment are two specific illustrations of this support.

Provost's policy statement regarding assessment at ESF
The following policy statement, communicated by the Provost directly to all faculty, staff and students further confirmed administrative commitment to student learning assessment at the College.

> *Assessment of student learning outcomes at the course, program, and institutional level benefits ESF and its patrons by encouraging thoughtful identification of educational objectives concordant with our mission -- to advance knowledge and skills to promote the leadership necessary for stewardship of both the natural and designed environments – and by ensuring that our graduating students have mastered the educational material embodied in those objectives.*

> *Effective student learning outcomes assessment requires regular collection and examination of data that directly measure student proficiency in all learning outcomes. Moreover, effective assessment plans are efficient, achieving reliable results without unnecessary effort.*

> *Assessment is part of a cycle that fosters continuous improvement in educational outcomes. In this cycle assessment results reveal opportunities for improvement in student performance; curricular and/or pedagogical changes are instituted to*

enhance performance; efficacy of the changes is evaluated by subsequent assessment. Through the assessment-improvement cycle we demonstrate ESF's institutional ethos expressed in our motto – Improve Your World.

At ESF the following policies guide student learning outcomes assessment practice.

❖ *The Faculty creates, manages, and assesses all curricular efforts at ESF.*
❖ *All academic programs shall have explicit learning outcomes and a plan to assess them.*
❖ *All assessment plans shall conform to Middle States Higher Education Commission standards.*
❖ *All course syllabi shall include student learning outcomes.*
❖ *Learning outcomes in required courses shall link with learning outcomes of the program(s) for which the course is required.*
❖ *All departments shall document assessment efforts in their annual reports of activity including data collected, assessments conducted, response to assessments, and adjustments to assessment plans.*
❖ *All assessment plans and results shall be made publicly available on the ESF assessment web page.*

Incentives for implementing meaningful assessment of student learning outcomes include the use of these results in the determination of allocation of resources to departments. Additionally, assessment efforts are considered in the determination of discretionary raises for individual faculty members.

Appendix 1

SUNY ESF Annual Institutional Strategic Planning

Review and Update

AY 08/09
SUNY-ESF College-wide Metrics

	Strategic Priority	Actual 06/07	Proposed 07/08	Actual 07/08	Proposed 08/09
Development Office					
Fund Raising	4	$1.52M	$2.5M*	$1.7M**	$2.8M
Annual Fund	4	$345K	$355K	$396K	$435K
Alumni Participation	4	32%	33%	31%	33% vs. 9.9% for SUNY
Foundation Assets	4	$20M	$22M	$22M	$23M
1911 Society					100 members by 2011
*Including $1M estate gift					
**$1M estate gift not received in 07/08					
Undergraduate Recruitment/Admissions					
Undergraduate Applications	Q&G	1870	2000	2191	2200
New Undergraduates (fall entry)	Q&G	445	475	480 (+17 internal TR)	495 (Fall 2009)
% Frosh/Transfer Ratio	Q&G	56/44	55/45	61/39	58/42
Selectivity (Groups 1 & 2)	Q&G	88%	85%	87% (w/special)	90%
SAT Scores	Q&G	1150	1160	1160	1170
HS Class Rank Top Quartile	Q&G	56%	60%	65%	67%
Top Half	Q&G	91%	93%	94%	95%
% Students Admitted (FR + TR)	Q&G	55%	55%	48% (1053/2191)	49%
% Out of State (FR + TR)	Q&G	14%	15%	18% (92/503)	20%
Diversity/Under-represented groups (FR+TR)				6%	8%

	Strategic Priority	Actual 06/07	Proposed 07/08	Actual 07/08	Proposed 08/09
Government Relations					
Federal Appropriations	4	$1.5M	$3.0M ($1.1M in bills)	$1.6M-$6.1M (FY 2009)	$5.8M (FY 2010)
State Appropriations	4/7	$23.0M*	$12.6M (in process)	$30,750,000	<$10M
*Not a new initiative; came from previous earmark					
Community Service/Service Learning					
Community Service Hours	2/6	63,718	65,000	61,942	65,000
Service Learning Courses - Undergrad	2/6	38/62 total	40	26	35
Community Partners	2/3/6	146	150	168	170
Freshman Requirement	2/6		Initiated Fall '07	9 projects	TBD
Office of Research Programs					
RF Expenditures	4	$13.25M	$14.5M	$14.7M	$16.0M
IDC Recovery	4	18.7%	22%	19%	22%
Proposal Dollar Value	4	$36.9M	$48M	$62.1M	$71.4M
Proposal Number	4	222	230	260	286
Proposal Yield					
Instruction and Graduate Studies					
Applications Spring	Q&G	64	65	59	65
Summer + Fall	Q&G	343	360	401	450
New Graduate Students Spring	Q&G	24	27	27	28
Summer + Fall	Q&G	110	118	112	125
New Ph.D. Students (incl. in above)	Q&G	32	34	33	36

	Strategic Priority	Actual 06/07	Proposed 07/08	Actual 07/08	Proposed 08/09
Graduate Certificate (not in above)	Q&G/4	20 Bioproc.	12	15	15
TOTAL		154	157	159	168
New Course Proposals				29	
Course Revisions				20	
New Programs of Study				4 (MS, MPS in Env. Studies; MPS in Chem.; lower division Honors Program)	
Curriculum Revisions				7	
Diversity/Under-represented groups					
Alumni Office					
Legacy Scholarship & Recognition Program	Q&G/4		$8,000 - $12,000	$8,000	$10,000
Alumni Participants	4	1,272 alums + 925 students/families	1,200-1,400	1,820 + 900 students & parents	1800 + 900 students/parents
Alumni Events	4	21 events**	20 events	22 events	22 events
Alumni Dues Revenue	4	$58,168*	$59,000	$55,211.50	$57,000

*Dues alone equaled $50,922 but a promotion yielded $7,246 extra

**5 events were in conjunction w/SUNY. Not sure they will host that many in '07-'08.

	Strategic Priority	Actual 06/07	Proposed 07/08	Actual 07/08	Proposed 08/09
Communications Office					
Column Inches of Press	3	8,832	8,500	9,400	9,000
Mentions in National Media (newspaper, TV/R, magazines, websites)	3	122	150	156	150
Mentions in State Media (newspaper, TV/R, magazines)	3	105	100	120	110

	Strategic Priority	Actual 06/07	Proposed 07/08	Actual 07/08	Proposed 08/09
Special Events	3	14	12	12	12
Print and Web Ads (purchased)	3	53	55	51	45
TV and Radio Ads (minutes)	3	232	300	650	400
TV and Radio Coverage (hrs) [news coverage]	3	41	45	50	45
News Releases/Contacts from our staff	3	80/23	80/20	77/23	8/20
Publications Development	3	207	210	220	210
Reporter Inquiries	3	183	190	235	200
Web hits from external				16,250,000	17,000,000
Human Resources					
UUP Professional Performance	7	April 2007- 67% June 2007 – 27% Due to new cycle on 4/1/07	80%	53% June 2008 – 43% due to new cycle 6/1/08	80% by end of current cycle
Training Programs	7	Provided programs that ~73% (301) employees were eligible to attend: ~207 participants attended*	Provide a variety of training programs that ~50% of employees would be eligible to attend	Provided programs that ~61% (261) employees were eligible to attend: ~242 participants attended**	Provide a variety of training programs that ~50% of employees would be eligible to attend
Online Application System	4/7			$14,700 in savings (supplies and labor)	

*Summary of training (7/1/06-6/30/07):
- UUP Professional Performance Program/Evaluation training
- Orientation for VP EM&M, 4 dept. chairs, 2 supervising professionals
- Leadership training: Greater Syracuse, SUNY/Cornell, Ahern & Assoc., SUNY Chancellor's Program
- RF Project Directors Information Session (w/Res. Ofc.)
- Sexual Harassment Training: ERFEG faculty, custodial staff, CSEA-ASU supervisors
- CSEA Training Council implementation

- Administrative Support Training
  - Retirement Benefits session including Social Security
  - Custodial staff email training
- Newcomb training on Student Policies (presented by Student Life)

**Summary of training (7/1/07-6/30/08):
- Management/Supervisor Orientations for 2 department chairs, 3 unit heads, 2 supervising professionals
- Leadership training: Leadership Greater Syracuse, Ahern & Associates, SUNY Leadership Program
- Department chairs: chair mentoring sessions, Cornell Conflict Management
- FERPA training (2 sessions)
- "Dealing with Distressed Students: training (2 sessions)
- CSEA online training implementation
- UUP performance program/evaluation training (3 sessions)
- Sexual Harassment training (chemistry faculty)
- Governor's Office of Employee Relations Institute (2 HR employees)
- Graduate Student Career Planning session
- Janitor training
- Individual training opportunities (receptionist training, managing multiple priorities)

	Strategic Priority	Actual 06/07	Proposed 07/08	Actual 07/08	Proposed 08/09
Physical Plant					
Special Projects		3/7 3/7 7 • Biofuels initiative – land and tank acquisition in process • Fuel cell training completed • Campus Master Plan Committee meeting regularly and making	• Biofuels initiative – complete land acquisition, tank installation, etc. • Rainwater collection system for reuse (washing vehicles, etc.) • More office renovations and moves • Master Plan Committee to	• Biofuels Initiative - Land acquired by ESF College Foundation, tanks acquired and painted • Rainwater collection system - 4- 1,000 gal. tanks hooked up and piped to vehicle garage • Renovations/Moves - Completed renovations and moves in Moon,	• Biofuels Initiative – transfer land to State and complete tank installation • Rainwater collection – address water quality questions and identify additional uses • Renovations/Moves – Complete Communications Ofc. Renovation. Make improvements to west side of Bray basement

	Strategic Priority	Actual 06/07	Proposed 07/08	Actual 07/08	Proposed 08/09
Energy Conservation/Utilization	7	progress; engagement of campus community in Spring '07	work with Combined Program Study consultants on site selection, program use, and other issues	Marshall (Outreach), Bray (FNRM, Alumni Ofc., Payroll, Great Lakes) • Master Plan Committee - Combined program study nearing completion • Lighting – replaced 581 incandescent light bulbs with CFLS (cost: $9K). Installed prototype motion detector lighting on second floor of Baker.	for student use • Master Plan Committee - Complete Combined Program Study and begin design of Gateway Building • Lighting – Additional motion detector lighting installations
	7	• Two energy-efficient bunkhouses constructed at HWF			
	7	• TIBS boathouse and dock improvements			
	7	• Continued program to obtain no-cost surplus vehicles and restore them to service (backhoe, minivan)			
	7	• Various renovations, office moves, carpeting, etc. (Moon, Bray, Marshall)			
	7	• Participated in SmartOffice	• Implement SmartOffice consultant's	• Obtained $250K in external funding	• Obtain $250K in external funding

	Strategic Priority	Actual 06/07	Proposed 07/08	Actual 07/08	Proposed 08/09
	7	data collection process; awaiting consultant's report • Walters Hall – total window replacement • Baker Lab – new energy recovery system	recommendations • Photovoltaic installations – Walters and Baker • Wind turbine acquisition and installation – Heiberg • Hire consultant to conduct building energy audits • Investigate and, if appropriate, install energy-saving devices/equipment	commitments • Implemented Gridlogix Energy Management System (Walters PV, fuel cell monitoring) • Adjunct Assoc. Prof. – developed 2 new courses for Renewable Energy minor • Preliminary NYPA Energy Audits for main Campus and AEC (~$3.5M main campus; ~$600K AEC EPC contracting) • Sustainability conference – 270 participants • New natural gas meter - $12K annual savings • Diagnostics for Walter's PV array performance problems	• Develop plan to reduce campus energy use by 10% • Develop Sustainability Plan (Energy use) • Install Ranger School Wood Boiler • Install Heiberg wind turbine • Obtain biodiesel Gator for AEC • Complete Energy Audits for Main Campus and AEC • Develop CHP program for Main Campus • Develop Green Energy Cooperative • Submit a NYSERDA CHP grant proposal • Prepare GHG Report as part of President's Climate Commitment • Prepare ASHEE STARS rating
Alternative Fuel Vehicles (hybrid, electric, flex, biodiesel,	3/6	2 hybrids	1 biodiesel bus 2 flex fuel vehicles	1 flex fuel pickup truck 2 flex fuel vans	New purchases unlikely due to spending

	Strategic Priority	Actual 06/07	Proposed 07/08	Actual 07/08	Proposed 08/09
natural gas)					
		Did not have funding for additional vehicles	2 flex fuel or biodiesel pickup trucks	1 biodiesel dump truck	restrictions
Recycled Materials	6/7	88 tons (incl. 48.9 tons paper, 20.4 tons metal, 9.9 tons corrugated, 4 tons used electronics)		■ 2007-08 info. not yet available ■ Over 100 items of surplus furniture were sold to employees instead of going to landfill disposal ■ Small dump truck and large dump truck were obtained at no cost from State vehicle surplus and reconditioned	

Environmental Health and Safety

Special Projects					
Policy Implementation	7	Boat Use Policy: ■ Solicited and shared information with Provost, dept. chairs, other SUNY campuses, AED Coordination: Increase number of AEDs to 20 and add 20 trained	Boat Use Policy: ■ Finalize and implement policy.	Boat Use Policy: ■ Boater safety training provide to 35 people ■ New regulations incorporated into draft policy; given to Provost for review	Boat Use Policy: ■ Additional boater safety training ■ Finalize and implement policy AED Coordination: ■ Continue to offer

Strategic Priority	Actual 06/07	Proposed 07/08	Actual 07/08	Proposed 08/09
7	and Cornell. ■ Provided on-campus boater safety training course to 35 ESF participants. ■ Wasiel and Ringler obtained Joint Pilots and Engineers License to better understand licensing requirements AED Coordination: ■ Increased number of AEDs from 5 to 10. ■ Increased number of certified ESF CPR/AED trainers from 1 to 4.	responders.	and approval AED Coordination: ■ 26 AEDs in use ■ 81 trained responders	AED/CPR training ■ Reinitiate Environmental Compliance Audits ■ Reduce Fire Inspection Code Violations

	Strategic Priority	Actual 06/07	Proposed 07/08	Actual 07/08	Proposed 08/09
		▪ Updated training of 10 CPR/AED responders.			
Hazardous and Asbestos Waste	7	▪ Oversaw Walters Hall asbestos abatement and hot work, incl. disposal of 155 cubic yards of asbestos waste. ▪ Oversaw shipment and disposal of 3 tons of hazardous waste.		▪ <u>Hazardous Waste:</u> ▪ 4.44 tons – 2.24 tons – normal College operations – 1.45 tons – one research project – 0.75 tons – fuel cell filter change-outs <u>Asbestos Waste:</u> ▪ In-house abatement – 20 cubic yards ▪ Walters waterline project – 455 cubic yards ▪ Recycled electronics – 14,550 lbs.	
Pandemic Flu Planning	7	▪ Formed ESF planning team. ▪ Coordinated w/Onondaga County Health Dept. & SU.	Continue planning efforts and expand communication activities.	Incorporated Pandemic flu planning into overall emergency response planning Completed	

	Strategic Priority	Actual 06/07	Proposed 07/08	Actual 07/08	Proposed 08/09
		▪ Participated in tabletop drill at SU.			
Business Affairs					
SUNY Procurement Card Use	7				
No. of cardholders	7	48	60	72	
Dollar amt. of transactions	7	$165,774 (79% incr. over 05-06)	$250,000	$252,140	$290,000
Web payment of tuition/fees	4	$642,649	$850,000	$655,242	**
Internal Controls Education	7			373 (79 hold outs)	430 (95% compliance)
Student Success					
Retention (Frosh → Soph)	2	84%	86%	85%	87%
Graduation/Attrition Rates	2	6 year (ent. 01): 67%/33% 5 year (ent. 02): 69%/29% 4 year (ent. 03): 46%/36%	tbd	6 year (ent. 02): 71%/27% 5 year (ent. 03): 63%/35% 4 year (ent. 04): 40%/40%	6 year (ent. 03) 65%/35% 5 year (ent. 04) 60%/40% 4 year (ent. 05) 50%/50%
SOS – Satisfaction Rating	2	N/A [Class of 2006]			
Placement	2	81% employed 14% grad. study		84% employed 12% grad. study (36% participation)	

**Additional growth in this metric will be at college expense of $1000 per $50,000 of additional credit card usage. Advise suspending promotion of this option.
2% cost under credit card/banking agreement.

	Strategic Priority	Actual 06/07	Proposed 07/08	Actual 07/08	Proposed 08/09
Instruction Technology					
Rooms Outfitted and Upgraded	1/2		Targeted 30 courses	40 professors; some have more than one course	50+ 200 video courses
Installation of Blackboard	1/2	17	28	20	
Information Technology					
Information Systems — Web-based interactive services for undergraduate applicants	Q&G	Application Status Checking System; Accepted student portal for Student Life; Undergraduate Advising Survey	Student ability to accept award letters electronically; Parent Portal	Student ability to accept award letters electronically – this project is in test mode awaiting feedback from the FA office; Parent Portal – this portal was implemented for the spring semester and allows parents to view student bills and to pay online. Student must authorize access for their parents.	Student ability to accept award letters electronically – full implementation; Online supplemental form for UA applicants – new applicants will be able to fill out this required form online
On-line Applications	Q&G	Completed – 2 currently under-way	Enhancements to HR employee application; Maintenance of student personal info by students on-line	Enhancements to HR employee application – continuous enhancements were made to this web application; it is currently stable w/comprehensive features; Maintenance of student	Enhancements to HR employee application – continuous enhancements; Updatable web applications for the Undergraduate Admissions and Degree Audit systems so that office data is accessible and maintainable for off-site employees; Maintenance of student site employees

	Strategic Priority	Actual 06/07	Proposed 07/08	Actual 07/08	Proposed 08/09
E-commerce	4	Security aspects explored	Complete secure on-line shopping for small stores	personal info by students on-line – this project is ready for the students when they return for the fall semester. As the students login to the MyESF student portal, the first screen encountered will be a request to update local address and phone info. they can also add NY Alert contact info. Revamped Web Portals – renovated the look and format of all web portals (faculty/staff, student, undergrad. & grad. applicant, employee applicant and parent). Applied more rigid and standards-based approach with greater use of style sheets that will result in greater efficiency of coding maintenance Complete secure on-line shopping for small stores – this project has been on hold due to competing priorities. This project will go forward in the next year.	Complete secure online shopping for Small Stores

	Strategic Priority	Actual 06/07	Proposed 07/08	Actual 07/08	Proposed 08/09
Computing and Network Services					
Intrusion Prevention Security	7	338,872 non-email threats removed		191,462 non-email threats removed	
Anti-spam Activity	7	62% email spam 1% virus infected		75% incoming emails were spam <1% virus infected	
Help Desk Calls	7	Help desk calls – 1311 since 1/07	Quicker response time	3041 completed between 7/07 – 6/08; tickets in the queue down to single digit	
		Installed Track-It Helpdesk software	Fully use software tracking for management of Help Desk	Completed	
Wireless System Installation	7/2	Cranberry Lake complete	5 Illick and all classrooms and conf. room on that floor	Completed	
		Marshall classrooms/studios	Bray lobby/rotunda and basement/rotunda	Completed	
		Moon Laptop loans 1538	All Baker Lab public spaces	Completed	
			Moon laptop loans 1600		
Paper use in computing labs	7	880,000 pages	710,000 pages		New allocation system

	Strategic Priority	Actual 06/07	Proposed 07/08	Actual 07/08	Proposed 08/09
Educational Outreach					
Conferences/Workshops/ Seminars	5	106	128	102	103 (+1%)
Conferences…: Non-credit Participants	5	3283	3767	3834	3872 (+1%)
Non-matriculated Students (Undergrad., grad., ESFHS)	Q&G	317	336	436	445 (+2%)
ESF in the High School students	Q&G	191	210	321	324 (+1%)
Non-traditional Students Served					
Total non-traditional students/participants (conf. + all non-matrics)	Q&G	3600	4103	4270	4313 (+1%)
Partnered Activities (non-redundant) (unplanned)	5	35	33	142	143 (+1%)
Partnered Activities: Participants	5	3247	2487		
Current grants (no. & total book value)	4	9 / $4,465,861	12 / $4,496,361	11 / $3,258,219	
Grants pending (no. & total book value)	4	4 / $80,500	4 / $1,500,000	9 / $1,680,985	3 / $1,000,000
Expenditures	4		$615,584	$1,336,667.95	$1,000,000
Global Environment DL	3			First offering	Spring 2009

Appendix 2

Two Examples of Administrative Unit Plans for Assessment

Office of Research Programs Assessment Plan 2008-09

The Office of Research Programs (ORP) seeks to stimulate, facilitate and highlight research at ESF. The ORP staff at all levels, and the Dean of Research, strive to make research opportunities at the College as broad and achievable as possible. We are the central resource for the initiation, funding and management of all ESF research activity.

Office of Research Programs – metrics for strategic planning					
	Strategic Priority	Actual 06/07	Proposed 07/08	Actual 07/08	Proposed 08/09
RF Expenditures	4	$13.25M	$14.5M	$14.7M	$16.0M
IDC Recovery	4	18.7%	22%	19%	22%
Proposal Dollar Value	4	$36.9M	$48M	$62.1M	$71.4M
Proposal Number	4	222	230	260	286

Attached are the metrics that the Office of Research Programs uses for monthly planning and assessment including analysis.

- Sponsored Program Expenditures: 2008-09 FYTD February 28
- Sponsored Program New Awards and Funding Changes to Existing Awards: 2008-09 FYTD February 28
- Proposal Submissions: 2008-09 FYTD February 28
- Proportion of New Award Value : Proposal Value (One Dollar Awarded per Dollars Proposed)
- Top 5 Sponsored Program New Awards and Funding Changes to Existing Awards: 2008-09 FYTD February 28
- Top 5 Proposal Submissions: 2008-09 FYTD February 28
- FY 2007 – 08 Actual – 2008 – 09 Mid Year Actuals and Projections – Key Metrics

Efforts will be made to reach these goals through strengthening the content and distribution of *The Research Times* publication to faculty and staff. The Office of Research Programs will initiate a program to more effectively research and secure funding through private foundations. Staff will be trained and research tools will be secured to assist them as they look into this largely untapped source of funding.

Office of Research Programs Assessment Report and Planning
Research Foundation Activity
2008-09 Fiscal Year-to-Date as of February 28, 2009

Sponsored Program Expenditures: 2008-09 FYTD February 28

	FYTD Direct	Change	FYTD Indirect	Change	FYTD Total	Change	Per Capita*
SUNY Doctoral Degree Granting Institutions:	419,932,217	21%	74,262,792	2%	494,195,009	18%	93,438.27
University at Albany	181,984,897	67%	13,126,134	1%	195,111,031	60%	294,729.65
Binghamton University	18,042,370	11%	4,084,726	10%	22,127,096	11%	39,372.06
University at Buffalo	73,057,128	4%	22,487,327	9%	95,544,455	5%	61,562.15
Stony Brook University	93,605,629	0%	22,799,380	-2%	116,405,009	0%	82,791.61
SUNY Downstate Medical Center	26,693,249	-6%	4,987,704	-2%	31,680,953	-6%	55,678.30
Upstate Medical University	16,831,145	-15%	4,725,039	-11%	21,556,184	-14%	59,878.29
SUNY ESF	8,116,143	-4%	1,567,092	2%	9,683,235	-3%	76,851.07
College of Optometry	1,601,657	30%	485,389	4%	2,087,045	23%	40,135.49

SUNY ESF	FYTD Direct	FYTD Indirect	FYTD Total	IC:DC Ratio
2008-09 FYTD February 28	8,116,143	1,567,092	9,683,235	19.31%
2007-08 FYTD February 28	8,471,763	1,531,618	10,003,380	18.08%
Change	-4%	2%	-3%	1.23%

* SUNY Full-Time Faculty headcounts as of AY2007-08 - Except for SUNY ESF, per capita averages represent Faculty headcounts as of AY2008-09

Sponsored Program New Awards and Funding Changes to Existing Awards: 2008-09 FYTD February 28

	FYTD Direct	Change	FYTD Indirect	Change	FYTD Total	Change	Per Capita *
SUNY Doctoral Degree Granting Institutions:	333,514,573	4%	68,906,884	3%	402,421,457	4%	76,086.49
University at Albany	117,905,989.74	-4%	11,234,506.68	-32%	129,140,496.42	-8%	195,076.28
Binghamton University	15,698,721.31	0%	3,995,269.79	-1%	19,693,991.10	0%	35,042.69
University at Buffalo	70,282,676.02	17%	20,820,888.63	19%	91,103,564.65	17%	58,700.75
Stony Brook University	77,657,392.57	22%	21,581,791.19	25%	99,239,183.76	23%	70,582.63
SUNY Downstate Medical Center	24,840,553.84	-19%	4,673,405.16	-6%	29,513,959.00	-17%	51,869.88
Upstate Medical University	17,177,527.94	-12%	4,980,106.83	-13%	22,157,634.77	-12%	61,548.99
SUNY ESF	8,745,121.36	61%	1,295,518.70	30%	10,040,640.06	56%	79,687.62
College of Optometry	1,206,590.34	55%	325,396.96	56%	1,531,987.30	55%	29,461.29

SUNY ESF	FYTD Direct	FYTD Indirect	FYTD Total	IC:DC Ratio
2008-09 FYTD February 28	8,745,121	1,295,519	10,040,640	14.81%
2007-08 FYTD February 28	5,432,844	994,522	6,427,366	18.31%
Change	61%	30%	56%	-3.49%

* SUNY Full-Time Faculty headcounts as of AY2007-08 - Except for SUNY ESF, per capita averages represent Faculty headcounts as of AY2008-09

Proposal Submissions: 2008-09 FYTD February 28

	FYTD Number	FYTD Amount	Average Amount	IC:DC Ratio	Major Proposal Adjustment	
2008-09 FYTD February 28	150	55,055,306	$367,035	31.31%	- $25M	30,055,306
2007-08 FYTD February 28	175	43,629,632	$249,312	29.14%	- $8M	35,629,632
Change	-14%	26%	47%	2.17%		-16%

Proportion of New Award Value : Proposal Value (One Dollar Awarded per Dollars Proposed)

2008-09 FYTD February 28

$$\frac{10,040,640}{55,055,306} = \frac{1}{5.48}$$

2007-08 FYTD February 28

$$\frac{6,427,366}{43,629,632} = \frac{1}{6.79}$$

Analysis:

Sponsored Expenditure volume remains flat with respect to the first eight months of FY2007-08. The IC:DC ratio remains strong for expenditure activity, and Indirect expenditures are currently exceeding initial projections with respect to the FY2008-09 financial plan.

New Sponsored Funding volume continues to maintain an impressive growth rate relative to the same period last fiscal year, with a 56% increase over the first eight months of FY2007-08 to $10M. This rate of growth is impressive given the current economic climate, and especially in relation to the other SUNY Doctoral campuses, which are averaging a 4% increase overall. The New Funding IC:DC ratio continues to slide relative to FY2007-08 to the current rate of 14.81%. This is partially due to the fact that four of our top five new awards currently have an IC:DC ratio of less than 8%. The IC:DC ratio is one of our primary indicators of future indirect cost expenditure volume and we may begin to see an impact on our financial plan indirect cost revenue projections during the next few months, and into next fiscal year, if this metric does not improve.

Proposal Submission rates, both in numbers and proposed dollars, again slid substantially during February relative to last fiscal year. While we are maintaining a 26% increase in total proposed dollar volume, that substantial dollar volume increase continues to be attributable to a single $25M proposal submitted in September 2008. When adjusted for major (>$5M) unfunded proposals, our proposed dollar volume is down 16% on a 14% decrease in the total number of submitted proposals. The IC:DC ratio of submitted proposals remains strong relative to FY2007-08, with a 2.17% increase to 31.31%. The proposal IC:DC ratio is one of our primary indicators of new award indirect cost volume, so this increasing metric is good news relative to the current slide in the IC:DC ratio for new awards mentioned above.

ESF Expenditure and New Award volumes continue to perform well relative to the other SUNY doctoral institutions on a per capita basis. ESF is currently ranked 3rd behind Albany and Stony Brook in Expenditures per capita, and 2nd behind only Albany in per capita New Funding.

Top 5 Sponsored Program Project Expenditures: 2008-09 FYTD February 28

Award Sponsor	Award Type	Project PI	Direct Cost Actual Expenditures	Indirect Cost Actual Expenditures	Total Actual Expenditures	Award Number	Project Number
US Department of Energy	Federal	Amidon, Dr. Thomas E	422,919.15	215,292.44	638,211.59	44709	1066787
National Science Foundation	Federal	Gibbs, Dr. James	286,235.02	32,302.83	318,537.85	46628	1071321
Environmental Protection Agency	Federal	Hassett, Dr. James M	228,742.92	49,404.25	278,147.17	46155	1069844
National Science Foundation	Federal	Leopold, Dr. Donald J	268,618.37	0.00	268,618.37	42174	1060694
US Army Research Development & Engineering Command	Federal	Boyer, Dr. Gregory L	252,270.87	0.00	252,270.87	37871	1051392

Top 5 Sponsored Program New Awards and Funding Changes to Existing Awards: 2008-09 FYTD February 28

Award Sponsor	Award PI	Award Start Date Active	Award End Date Active	Direct Volume	Indirect Volume	Total Volume	Award Number
National Science Foundation	Gibbs, Dr. James	8/1/2007	2/28/2010	1,067,490.00	88,848.00	1,156,338.00	46628
US Department of Energy	Amidon, Dr. Thomas E	10/1/2007	9/15/2009	649,085.00	338,915.00	988,000.00	44709 **
OBrien and Gere Engineers	Amidon, Dr. Thomas E	1/1/2007	6/30/2009	968,000.00	0.00	968,000.00	44796
NYS Office of Science Technology and Academic Res	Volk, Dr. Timothy A	3/15/2008	3/14/2010	480,168.00	19,832.00	500,000.00	48658
USDA Cooperative State Research Service	Ringler, Dr. Neil H	10/1/2008	9/30/2009	489,982.00	0.00	489,982.00	47972

** Designation represents supplemental funding of existing award, no designation represents a new award

Top 5 Proposal Submissions: 2008-09 FYTD February 28
(NO CHANGES from 1/31/09 Report)

Sponsor Name	Proposal PI	Requested Start Date	Requested End Date	Direct Cost Request	Indirect Cost Request	Total Request	ORP Preaward ID
US Department of Energy	Amidon, Thomas E.	7/1/2009	6/30/2014	$ 18,288,669	$ 6,691,610	$ 24,980,279	4991
National Science Foundation	Beal, Richard E.	9/1/2009	8/30/2012	$ 2,271,428	$ 77,877	$ 2,349,305	5072
Brookhaven National Laboratory for U.S. Department of Energy	Winter, William T.	9/1/2009	8/31/2014	$ 757,140	$ 337,597	$ 1,094,738	4984
Syracuse University	Gitsov, Ivan	5/1/2009	4/30/2014	$ 668,226	$ 333,863	$ 1,002,089	4992
National Science Foundation	Bujanovic, Biljana	3/1/2009	2/28/2014	$ 672,471	$ 285,419	$ 957,890	4952

Green Highlighting represents Top 5 changes during the past month

FY 2007-08 Actuals -- 2008-09 Mid-Year Actuals & Projections
Sponsored Program Metrics

Fiscal Year	2007 - 2008		2008 - 2009		
Metric	Goal	Actual	Goal	Mid-Year Actual	Mid-Year Projected Annual
Expenditure Dollar Volume (Change from Prior Year)	9%	11%	9%		0%
Expenditure Volume	$14.5M	$ 14,688,653	$ 16,000,000	$ 7,427,502	$ 14,679,784
Expenditures per capita	$106,618	$ 108,805	$ 118,519	$ 58,948	$ 116,506
IDC:DC Ratio Expenditures	22%	19.1%	22%	19.5%	
Proposal Dollar Volume (Change from Prior Year)	41%	68%	15%		25%
Proposal Volume	$52.0M	$ 62,105,455	$ 71,400,000	$ 48,414,358	$ 77,600,572
Proposals per capita	$382,353	$ 460,040	$ 528,889	$ 384,241	$ 615,878
No. of Proposals (Change from Prior Year)	4%	18%	10%		-4%
Number of Proposals	230	260	286	110	249
IDC:DC Ratio Proposals	30%	28.5%	31%	31.1%	
Mean Value of Proposals (Change from Prior Year)	35%		5%		30%
	$226,087	$ 238,867	$249,650	$ 440,131	$ 311,191
New Award Dollar Volume (Change from Prior Year)	8%	-15%	30%		28%
New Award Volume	$16.5M	$ 13,078,187	$ 17,000,000	$ 7,779,214	$ 16,732,265
New Awards per capita	$121,324	$ 96,875	$ 125,926	$ 61,740	$ 132,796
IDC:DC Ratio New Awards	22%	21.3%	24%	16.7%	
Proposal Success Rate	32%	21.1%	32%	16.1%	21.6%
Proposal $: New Award $	3.15 : 1	4.75 : 1	3 : 1	6.22 : 1	4.64 : 1
Active Award Book Value	$ 55,000,000	$ 61,705,556	$ 57,000,000	$ 56,212,720	
Funded/Seeking Faculty	92%	90%	94%	84%	
No. RF Setups -- Fellowships/ Conferences/Development	165	219	170	172	
Number of RF-Supported Grads (Change from Prior Year)	15%	4%	5%		
Number of Individuals	295	266	279	200	
RF Grad Stipend Amount (Change from Prior Year)	15%	10%	5%		
Salary/Stipend Amount	$2.18M	$ 2,083,221	2,187,382	$ 1,148,296	

Enrollment Management and Marketing Division
Assessment Plan 2007-2012

Objective: Achieve ESF's undergraduate enrollment goals by identifying, cultivating, selecting and enrolling the desired number, quality, and demographic mix of new undergraduate students (freshmen, transfer students, full-time, part-time and distance learners).

Assessment Tools	Assessment Schedule
1. Management "count" reports tracking information requests, applications, acceptances, and enrolling students for each academic program and demographic group.	1. Weekly, semester, and annual
2. Academic profile of admitted and enrolling students for each academic program and targeted demographic groups.	2. Fall and spring semesters
3. Admission "conversion" reports used to assess enrollment and cost effectiveness of recruitment activities.	3. Twice monthly
4. College Board Admitted Student Questionnaire used to assess ESF's market position and prospective student (freshmen) satisfaction levels.	4. Bi-annual (2007, 2009, 2011)
5. College Board validity studies used to measure predictive reliability of factors (grades, SAT, etc.) used in admitting applicants.	5. Fall 2008
6. Competitor benchmarking through SUNY central administration enrollment and financial aid reports, and secondary sources (e.g. U.S. News, Petersons, College Board).	6. Annual (fall semester)
7. Enrollment projections/targets set in consultation with SUNY central administration and ESF executive cabinet.	7. Annual
8. ESF retention reports analyzed for enrollment implications.	8. Annual

Objective: Assist current and prospective ESF students to obtain the financial assistance required to complete their academic program, while using available funds strategically to assist the College in meeting its enrollment and net tuition revenue goals.

Assessment Tools	Assessment Schedule
1. Management reports tracking numbers of aid applications received, student awards offered, and aid budget expenditures for targeted demographic groups.	1. Twice monthly and annual
2. Internal and external (state and federal agency) audits verifying compliance with aid eligibility regulations, awarding and disbursement practices.	2. Annual
3. Econometric studies used to assess financial aid impact on freshmen enrollment rates.	3. Annual
4. Competitor benchmarking with SUNY campuses through central administration.	4. Annual
5. SUNY Student Opinion Survey (current students) and Admitted Student Questionnaire (prospective freshmen) measure student satisfaction with financial aid information and services.	5. Bi-annual

Objective: Produce college publications, web pages, and other media to communicate ESF's desired image; to provide information to prospective students, employers, and other external audiences; and to support the communication needs of other academic and administrative department at ESF.

Assessment Tools	Assessment Schedule
1. Management reports track the number of publications and other media produced within client's desired schedule and cost.	1. Annual
2. College Board Admitted Student Questionnaire provides specific measures of the institutional image provided to admitted freshman applicants through ESF publications and website.	2. Bi-annual (2003, 2005, 2007)

Objective: Increase general awareness and visibility of ESF through an effective news and media relations program.

Assessment Tools	Assessment Schedule
1. Management reports track attainment of ESF metrics for:	1. Midyear and annual

    a. column inches of press;
    b. mentions in national, regional and local media;
    c. special ESF events;
    d. print and web advertising;
    e. television and radio advertising;
    f. television and radio coverage (news);
    g. college publications produced;
    h. news releases and reporter contacts.

Objective: Contribute directly to the achievement of ESF's diversity goals, and to enhancing the diversity and quality of ESF's educational environment.

Assessment Tools	Assessment Schedule
1. A large majority of the assessment tools used by the EM&M Division (listed above) provide specific information used to assess our success in attracting and serving diverse student populations.	1. As identified above
2. Employee data is examined by Vice President and directors regularly to assess progress in diversifying our Division's workforce.	2. Ongoing

Appendix 3

SUNY ESF Annual Assessment Report for 2008-09

SUNY College of Environmental Science and Forestry
Annual Assessment Report for 2008-2009

Strategic Goal Addressed	Intended Institutional Effectiveness Outcome to be Assessed this Cycle	Method(s) of Assessment	Results of Assessment	Implementation Plan
Goal 1: Enrich Academic Excellence	Strengthen the caliber of freshmen class	• Mean SAT Scores and Selectivity Criteria tracked and compared to SUNY and other key institutional competitors. (SUNY, College Board, NYSED)	Achieved 07/08 proposed average SATs of 1160 and set target for 08/09 at 1170. ESF scores strong as compared to SUNY middle 50% and peers.	Expand marketing efforts to academically superior students and increase recruitment to full national level. – Admissions Office
		• High School GPA and class rank tracked and compared to SUNY and other key institutional competitors. (SUNY, College Board)	HS Class Rank Top quartile – 65% actual 07/08, proposed 08/09; Top half – 94% actual 07/08, 95% proposed 08/09	Expand marketing efforts to academically superior students and increase recruitment to full national level. – Admissions Office
	Achieve diverse student population	• % of out-of-state students Tracked and compared to SUNY and other key institutional competitors (SUNY, College Board, NYSED)	Proposed 07/08 out-of state 15%, actual 18%, proposed 08/09 20%.	Expand marketing efforts to academically superior students and increase recruitment to full national level. – Admissions Office
		• Track underrepresented populations admissions and graduation success (SUNY, NYSED, IPEDS)	Incoming students from divers/under-represented groups 07/08 actual 6%, Proposed 08/09 8%. Begin collecting graduation stats and tracking	Hire International Education Coordinator. Create more support programs for underrepresented students to attract and retain. Admissions and Student Affairs
	Strengthen Support Services	• Interview Students, Examine services provided by Syracuse University, SOS	Greater need for Career Services, Counseling and International Student Services	Reorganize Student Affairs including splitting responsibilities for Career and Counseling Services and new hire. Ongoing discussions with Syracuse University to enhance services. Provost and Student Affairs

Strategic Goal Addressed	Intended Institutional Effectiveness Outcome to be Assessed this Cycle	Method(s) of Assessment	Results of Assessment	Implementation Plan
Goal 2: Provide Outstanding Student Experience	Highest Graduation Rates in SUNY	• Track Graduation rates (SUNY, NYSED, College Board, Mission Review)	07/08 actual 6-yr (entered 02) 71%/27%; 5-yr (entered 03) 63%/35%; 4 year (entered 04) 40%/40%. Targets for 08/09 6-yr (entered 03) 65%/35%; 5-yr (entered 04) 60%/40%; 4-yr (entered 05) 50%/50%.	Reinvigorate College Retention Committee to examine trends and propose changes – Enrollment Management
		• Track retention rates (SUNY, NYSED, College Board, Mission Review)	Freshmen retention rates 07/08 target 6%, actual 85% and target for 08/08 set at 87%.	Reinvigorate College Retention Committee to examine trends and propose changes – Enrollment Management
		• Track Student Satisfaction (SOS, Admitted Student Questionnaire, NSSE)	SOS and NSSE surveys indicate ESF highest in SUNY approval on a number of key questions.	Review surveys in detail and make recommendations to Provost – Dean of Instruc. & Student Affairs
	Develop international learning experiences	• Track participation in international study (Open Doors Survey, Internal data)	04-05 international study = 68 05-06 international study = 59 06-07 international study = 57	Hire International education coordinator to track and enhance programs – Student Affairs
		• Provide opportunities of international study (ESF International Education Coordinator)	Metrics for International Student Study TBD	Hire International education coordinator to track and enhance programs – Student Affairs
Goal 3: Go-To Institution	Authority and source of environmental news	• # mentions in national and state media (Communications Office stats)	Mentions in national media 07/08 proposed 150, actual 07/08 156, proposed 08/09 150. Mentions in state media 07/08 proposed 100, actual 07/08 120, proposed 08/09 110.	Hire web developer to enhance web presence, designate campus event coordinator; increase video presence; increase multiple uses by repurposing stories and media for wider distribution. – Communications Office
	Enhance college recognition	• Increase visibility of Feinstone Award	2007 Feinstone Award winner New York Times reporter Andrew Revkin 2008 Feinstone Award speaker John Holdren who was subsequently named President Obama's Science Advisor.	Recruit high visibility award winners and speakers and publicize widely. Dr. Holdren gives community-wide lecture – Development and Communications

Strategic Goal Addressed	Intended Institutional Effectiveness Outcome to be Assessed this Cycle	Method(s) of Assessment	Results of Assessment	Implementation Plan
Goal 3: Go-To Institution (Continued)	Enhance College recognition with High Schools	• Track ESF in HS program enrollees, HS programs conducted, # articulation agreements (Outreach Office and Dean's Office stats)	ESF in HS students proposed 07/08 210, actual 321, proposed 08/09 445	Continue to create and strengthen relationships with High Schools and enhance curriculum materials Outreach Office
Goal 4: Become Financially Secure	$30M in annual research	• Track research expenditures (Office of Research Programs, SUNY, NSF)	07/08 proposed = $14.4M 07/08 actual = $14.7M Target for 08/09 = $16M highest per capita in SUNY	Aggressive solicitation of grant RFPs through *Campus Research Times* and Private Foundations – Office of Research Programs
	Acquire property investments	• Evaluate need for housing ESF students other than through SU (Development Office Stats, Enrollment Stats, Business Office Stats)	Secure properties for housing – complete purchase of final 3 properties and plan for development	Retain housing developer, purchase final properties, perform survey, environmental impact study, and geo-technical study and market study of ESF students. - Development Office
	Enhance Alumni giving	• Track # Alumni Participation (SUNY, US News, College Board) Increase 1911 Society Donors (Development Office stats)	Fund Raising: Proposed 07/08 = $2.5M, actual $1.7M; proposed 08/09 $2.8M Alumni participation 33% in 07/08, 31% actual and 33% target for 08/09. SUNY average 9.9% Annual Fund 07/08 target $355K, actual $396K and 08/09 target $435K 08/09 1911 Society donors set at 100 by 2011	Shift staff responsibilities to include major donor prospects. Allocate time differently to spend additional time on non-donors; coordinate with capital campaign planning initiatives. - Development Office, Alumni Office
	Create $100M endowment	• Track Foundation Assets (Development Office stats)	Development of Capital Campaign	Retain campaign consultant, adopt campaign plan. – Development Office

Strategic Goal Addressed	Intended Institutional Effectiveness Outcome to be Assessed this Cycle	Method(s) of Assessment	Results of Assessment	Implementation Plan
Goal 5: Strategically Build Partnerships	Act as a catalyst for economic development	• # community partnerships (Outreach Office stats, SUNY)	Proposed 07/08 community partners, 07/08 actual and 08/09 proposed 170.	Events at SUNY Morrisville, CNY Biotechnology Research Center, Offer *Advanced Certificate in Bioprocessing.*, Sponsor *Advances in Bioprocessing: Cultivating Economic Growth*
	Develop continuing education programs for non-traditional students	• # of courses and programs (Outreach Office stats, SUNY)	Actual 07/08 4270 participants Proposed 089/09 4313 participants	Hold the Environmental Challenge science fair and career exploration opportunity for all Syracuse City School District 7th and 8th grade students. Hold 4-day Basic Photovoltaic Installer and Maintenance Training course. Stormwater Management Series
Goal 6: Respond to the Needs of Society	Provide continuing education opportunities to science teachers, and economic development opportunities to region	• # programs, courses and enrollment (ESF, SUNY and Chamber of Commerce Data) • # programs, courses and enrollment (ESF, SUNY and Chamber of Commerce Data)	# Conferences/Workshops/Seminars Proposed 07/08 128, actual 102, proposed 08/09 103. # Participants Conferences/Workshops/Seminars Proposed 07/08 3767, actual 3834, proposed 08/09 3872. Received two exemplary program awards from the Continuing Education Association of New York, Inc.	Work with High School teachers, BOCES and school districts as well as MACNY, Chamber, MDA, CoE, to create needed programs for education and economic development needs – Office of Outreach
	Offer Service Learning Courses	• # of community service hours (Student Affairs stats, President's Community Service Honor Roll, Making a Difference Colleges Guide)	ESF student Community Service hours 07/08 target 65,000, actual 61,942 and 08/09 proposed 65,000.	Work with faculty, curriculum coordinators and faculty chairs to increase opportunities. Student Affairs
	ESF to become Carbon Neutral by 2020	• Track energy savings and reduce energy consumption by 10% (NYSERDA energy audit, energy bills)	Target areas of immediate energy savings over 12 months	College Temperature Policy, Christmas campus closure, IT Green Plan, Review savings in July - Renewable Energy Sys.

Strategic Goal Addressed	Intended Institutional Effectiveness Outcome to be Assessed this Cycle	Method(s) of Assessment	Results of Assessment	Implementation Plan
Goal 7: Invest in Human Resources and Physical Infrastructure	Achieve Green Campus Designation	• # and Kind of sustainability initiatives (National Wildlife Federation)	Recognition in *Campus Environment 2008: A National Report Card on Sustainability and Higher Education.*	Hire Director Renewable Energy Systems to lead Renewable Energy Initiatives on campus. Renewable Energy Systems
	Promote professional and personal development of faculty and staff	• # an kinds of programs offered (SUNY, Professional organizations, Syracuse opportunities)	Proposed 07/08 provide training for 50% employees, Actual 61%, proposed 08/09 50%.	Review quality training programs available at low cost that would address campus needs for large audience. - Human Resources
	Work for ESF to be compensated in top 10% public colleges/universities	• Conduct salary/ compensation comparison studies (CUPA, SUNY, Engineering Workforce Commission, Am. Soc. For Engineering Ed., FAIES)	Salary compensation metrics and assessment need to be established and assigned. Provost, Planning and Human Resources to provide info to Exec. Cabinet.	Annual review of faculty salaries with in-depth review every 3 years. Provost and Human Resources
	Recruit underrepresented groups	• College Affirmative Action Plan (SUNY, Census data, *Professional Women and Minorities*, ESF data, *Digest of Education Statistics*, CUPA)	Utilization analysis indicates any areas of underutilization and annual placement goals set. Human Resources presented to VP and Affirmative Action Committee	Affirmative Action Plan available at Campus Moon Library – Human Resources
	Campus Physical Facilities Plan	• Create Team to develop campus masterplan including SUNY Construction Fund personnel (SUNY	Campus Masterplan team created and preliminary report written	Currently seeking funding to implement planning components. Vice President for Administration

Appendix 4

General Education Assessment Documents

1. General Education Assessment Plan
2. General Education AY07-08 Assessment Report
3. Writing Program Rubric Example

Plan for Assessing Student Learning Outcomes in General Education: Meeting Strengthened Campus-based Goals

SUNY College of Environmental Science and Forestry

Approved by the College Faculty, February 2, 2006
Revised March 2, 2007

ESF concluded its first three-year General Education assessment cycle in the 2004-05 academic year. A table, appended at the conclusion of this report, outlines our second cycle implementation plan. This plan incorporates the lessons learned in the first cycle and adopts the practices required or recommended by the Strengthened Campus-Based Assessment initiative including:

- Utilization of nationally-normed measures to assess mathematics, basic communication (written) and critical thinking (reasoning), and
- Assessment of the academic environment.

Further, the revised plan includes assessment only in:

- Mathematics,
- Basic Communications,
- Critical Thinking, and
- Academic Environment

Please note that our plan now reflects alignment with the SUNY-wide implementation cycle. This will enable us to appropriately benefit from the synergy and efficiency inherent in a System-wide effort.

We seek a waiver of the obligation to assess the other defined General Education categories for the following reasons:

1. There are unique challenges to assessing General Education at ESF:

   - ESF has a significant population of transfer students who come to ESF each year from as many as 50 different institutions both from within and outside SUNY and New York State. Approximately 50% enter as transfer students. The large transfer population makes General Education assessment especially vexing. It is difficult to collect and feed information back into course improvement and selection processes.
   - A significant percentage of general education courses are provided to our students from outside the direct control of our faculty and administration. With the exception of natural science and basic communication, the majority of our General Education courses are provided through an accessory instructional contract with our neighbor institution, Syracuse University.
   - Another challenge stems from the fact that our faculty does not include the entire breadth of disciplinary knowledge required of students as set forth in the SUNY General Education guidelines. This impacts our ability both to set threshold levels and assess student attainment.

2. The data we are collecting to inform General Education accomplishments and improvements are rather "thin". This is to say that, in contrast to some other SUNY schools, we are basing our

results and recommendations on data derived from one or two courses in each of the various General Education areas.

3. ESF's curricula, including our General Education program, reside in the context of (A) expectations and parameters established by ABET, SAF, ASLA and other accrediting and certifying bodies, (B) doctoral education and research, and (C) our specialized mission.

4. A General Education assessment effort that focuses time, energy and attention on those areas that are truly and explicitly pertinent to all undergraduate programs will have greater efficacy in terms of both the information it yields and the follow-up considerations and actions to which it leads.

5. All other General Education outcome areas will remain an important and valued part of our undergraduate education and will be considered within and as part of Academic Program review.

We will implement this plan beginning academic year 2006-07 (contingent upon availability of the SUNY-approved nationally-normed tests) and in coordination with other SUNY campuses (as outlined in communications from Provost Salins). This plan will be executed by the ESF College Faculty Governance, specifically a recently established subcommittee of the Committee on Instruction – the General Education Subcommittee – with support from the offices of the Provost and the Dean of Instruction and Graduate Studies.

Following is an implementation plan summary table followed by four tables, each summarizing plans for the four specific outcomes areas.

Assessing Student Learning Outcomes in General Education: Meeting Strengthened Campus-based Goals

Implementation Plan Overview

Cycle	Outcome Area	Course or Other Assessment Approach	SUNY Outcomes	Lead Faculty	Faculty Chair	Costs
Every three years	Critical Thinking	ACT CAAP (nationally-normed instrument). Administered in a designated class(s) TBA (as per SUNY guidelines).	Students will: ■ Identify, analyze, and evaluate arguments as they occur in their own or others' work; and ■ Develop well-reasoned arguments.	Beal	Leopold	SUNY
Every three years	Basic Communications (writing)	ACT CAAP (nationally-normed instrument). Administered in two class sessions with the same population in designated class(es) TBA (as per SUNY guidelines).	Students will: ■ Produce coherent texts within common college-level written forms; and ■ Demonstrate the ability to revise and improve such texts.	Lawler	Smardon	SUNY
Every three years	Mathematics	We intend to use the SUNY-approved nationally-normed test once this instrument is identified.	Students will: ■ Interpret and draw inferences from mathematical models such as formulas, graphs, tables, and schematics; ■ Represent mathematical information symbolically, visually, numerically and verbally; ■ Employ quantitative methods such as arithmetic, algebra, geometry, or statistics to solve problems; ■ Estimate and check mathematical results for	Abdel-Aziz	Dawson	SUNY

Every three years	Academic Environment	National Survey of Student Engagement (NSSE).	NA	reasonableness; and Recognize the limits of mathematical and statistical methods.	Bongarten	NA	SUNY

Assessing Student Learning Outcomes in General Education: Meeting Strengthened Campus-based Goals
General Education Knowledge/Skill Area: Mathematics

Narrative Rationale for Assessment Measures

General Education Learning Outcomes Students will (based upon Provost Salins' memorandum to campus presidents (7/14/05) regarding "Student Learning Outcomes for General Education Mathematics Requirement"):

- Interpret and draw inferences from mathematical models such as formulas, graphs, tables, and schematics;
- Represent mathematical information symbolically, visually, numerically and verbally;
- Employ quantitative methods such as arithmetic, algebra, geometry, or statistics to solve problems;
- Estimate and check mathematical results for reasonableness; and
- Recognize the limits of mathematical and statistical methods.

Direct Measure of Student Learning

Face Validity

A SUNY-approved nationally-normed test will be employed every three years during the spring semester.

The examination is a nationally-normed instrument. Members of the SUNY-ESF Faculty responsible for mathematics instruction will review the test scores for each student to determine if the outcomes have been achieved.

Reliability

The testing instrument will examine this competency. Development of the examination by others ensures objectivity of this measure.

Sampling Strategy

A sample of approximately 60 students (approximately 20% of the sophomore class) taking lower division courses will comprise the sample.

Standards

Exceeding: Students are at 80th percentile or higher
Meeting: Students are at 70th percentile or higher
Approaching: Students at 60th percentile or higher
Not Meeting: Students below the 60th percentile

SUNY ESF SCBA

3

Assessing Student Learning Outcomes in General Education: Meeting Strengthened Campus-based Goals

General Education Knowledge/Skill Area: Critical Thinking

Narrative Rationale for Assessment Measures

General Education Learning Outcomes. Students will:

- Identify, analyze, and evaluate arguments as they occur in their own or others' work; and
- Develop well-reasoned arguments.

Critical thinking is a signature of the ESF curricula and is infused throughout a high percentage of courses, especially in the upper division.

Direct Measure of Student Learning

The ACT CAAP, a SUNY-approved nationally-normed test, will be employed every three years during the spring semester.

Face Validity

The ACT CAAP test is objective, and the sample size will allow inferences about ESF sophomore populations and selected broad curricular groups (e.g., sciences, resource and design professionals, engineers).

Reliability

This is a well-respected and reliable test that provides a baseline against which to judge the ESF results.

Sampling Strategy

A sample of approximately 60 students (approximately 20% of the sophomore class) taking lower division courses will comprise the sample.

Standards

Exceeding: Students are at 80th percentile or higher
Meeting: Students are at 70th percentile or higher
Approaching: Students at 60th percentile or higher
Not Meeting: Students below the 60th percentile

SUNY ESF SCBA

4

Assessing Student Learning Outcomes in General Education: Meeting Strengthened Campus-based Goals

General Education Knowledge/Skill Area: Basic Communication (writing)

Narrative Rationale for Assessment Measures

General Education Learning Outcomes Students will:

- Produce coherent texts within common college-level written forms; and
- Demonstrate the ability to revise and improve such texts.

Direct Measure of Student Learning

The ACT CAAP, a SUNY-approved nationally-normed test, will be employed every three years during the spring semester.

Face Validity

The ACT CAAP test is objective and the sample size will allow inferences about ESF sophomore populations and selected broad curricular groups (e.g., sciences, resource and design professionals, engineers).

Reliability

This is a well-respected and reliable test that provides a baseline against which to judge the ESF results.

Sampling Strategy

A sample of approximately 60 students (approximately 20% of the sophomore class) taking lower division courses will comprise the sample.

Standard

Exceeding: Students are at 80th percentile or higher
Meeting: Students are at 70th percentile or higher
Approaching: Students at 60th percentile or higher
Not Meeting: Students below the 60th percentile

Assessing Student Learning Outcomes in General Education: Meeting Strengthened Campus-based Goals
General Education Knowledge/Skill Area: Academic Environment

Narrative Rationale for Assessment Measures

General Education Learning Outcomes No SUNY outcomes are prescribed.

Direct Measure of Student Engagement

The National Survey of Student Engagement (NSSE), a SUNY-approved instrument, will be employed every two years.

Face Validity

The NSSE is objective, and the sample size will allow inferences about ESF student populations and curricular areas (e.g., sciences, resource and design professionals, engineers).

Reliability

This is a well-respected and reliable test that provides a baseline against which to judge the ESF results.

Sampling Strategy

We will survey the entire population of freshmen and seniors.

Use of Data

Results from this survey will be employed by the Faculty Governance General Education Subcommittee and by campus administration to further enhance the campus climate and student engagement. We will consider the relationship between these results and the results of student learning outcome data.

ASSESSMENT OF STUDENT LEARNING OUTCOMES IN GENERAL EDUCATION

SUMMARY REPORT

Use this form to provide a summary report on campus-based assessment of student learning outcomes in General Education

Name of Institution: ___SUNY ESF___   **Academic Year:** 2007-08
{specify name of branch campus, if relevant}

Program improvements made as a result of the previous assessment of General Education:

Upon completion of ESF's first three-year General Education assessment cycle, a second cycle implementation plan was established. This subsequent plan incorporates lessons learned in the first cycle and adopts practices required or recommended by the Strengthened Campus-Based Assessment initiative including:
- Utilization of nationally-normed measures to assess mathematics, basic communication (written) and critical thinking (reasoning); and
- Assessment of the academic environment.

Further, the revised plan focuses our general education assessment on:
- Mathematics;
- Basic Communications;
- Critical Thinking; and
- Academic Environment.

Our plan is now fully aligned with the SUNY-wide implementation cycle, enabling us to benefit from the synergy and efficiency of a System-wide effort. Eight other General Education outcome areas, by agreement with SUNY, are to be incorporated within assessment of the major.

Our strengthened core General Education assessment plan was implemented AY 2007-08 due to the availability of SUNY-approved nationally-normed instruments. This plan was executed by ESF College Faculty Governance, specifically a recently established subcommittee of the Committee on Instruction – the General Education Subcommittee – with support from the

Associate Dean for Outreach and Instructional Quality and his staff, the Dean of Instruction and Graduate Studies, and the Office of the Provost.

In the course of conducting this cycle of assessment, were there any significant deviations from the plan that was approved by the General Education Assessment Review (GEAR) Group? If so, please comment on why the campus felt that it was necessary to make these changes and how these changes may have affected the reported results, if at all?

There were no deviations from our approved plan.

Major findings of this assessment and action to be taken in addressing these assessment findings:

We have employed three standardized tests: (1) Critical thinking, (2) Writing skills, and (3) Essay writing. We used the composite score combining the two essay scores.

The existing ESF categories for assessment relative to standards are:
Exceeding: Students are at 80th percentile or higher
Meeting: Students are at 70th percentile or higher
Approaching: Students are at 60th percentile or higher
Not Meeting: Students are below 60th percentile

However, based on review and discussion among faculty and administrators following administration of these instruments, we have determined that the following refinement of our existing standards is necessary and appropriate. Previously our standards were based on the faulty equation of population percentile ranking with percentage correct on an examination. As a result of this error, ESF students may, on average, score higher than the national population taking the test, but still largely not meeting the standard. For example, if ESF students are equivalent to the national population, one would expect that approximately 60% of the ESF students would fall in the "Not Meeting" standards category. We also discussed the problem that there are not set cut offs for the different assessment categories, so we are relegated to defining these categories relative to the national population, which struck us as a less than an accurate portrayal.

Based on the foregoing, the General Education Subcommittee has proposed a revised set of categories for assessing competence in general education learning objectives:
Exceeding: Students are at 80th percentile or higher
Meeting: Students are at 50th percentile or higher
Approaching: Students are at 25th percentile or higher
Not Meeting: Students are below 25th percentile

In the revised categories we require ESF students to score better than the national median to meet our institutional standard (i.e. we want our students to be in the top half of the population). If an ESF student is in the lower 25% of the national population, the student has not met our minimal standard. The standard for "Exceeding" is kept at the 80th percentile.

The result of the assessment under the two standards (Original and Revised) is provided next (based on the information provided by the testing service).

Essay Writing (percent of ESF students in each category)

	Existing	Hypothetical
Exceeding	39	39
Meeting	20	41
Approaching	8	4
Not Meeting	33	16

ESF average score was 3.4 compared to the national average of 3.1.

Writing Skills

	Existing	Hypothetical
Exceeding	34	34
Meeting	14	34
Approaching	14	20
Not Meeting	38	12

ESF average score was 65.7 compared to the national average of 64.1.

Critical Thinking

	Existing	Hypothetical
Exceeding	16	16
Meeting	11	32
Approaching	16	13
Not Meeting	57	39

ESF average score was 61.5 compared to the national average of 62.6.

The Faculty Governance General Education Subcommittee has forwarded their proposed revision of the standards to Faculty Governance for approval.

What has been learned that could be helpful to others as they conduct assessment of General Education?

Through our Associate Dean, Dr. Chuck Spuches, ESF played a lead role in having the January-February 2006 (Volume 18, Number 1) issue of *Assessment Update: Progress, Trends and Practices in Higher Education* devoted to SUNY's assessment efforts. Many of the lessons learned were outlined in this issue in an article coauthored by Spuches, Dr. Peter Gray (U.S. Naval Academy), Dr. Dudley Raynal (ESF), and Prof. Scott Shannon (ESF).

We have come to recognize the benefit of coordinating all assessment efforts and bringing a more focused and proactive approach to interpretation and utilization. We have further come to recognize the need to have staff available who, in addition to having appropriate expertise and experience, have the time available in their portfolio to adequately devote to assessment and assessment-based activities such as SUNY program reviews and professional accreditations.

Chief Academic Officer: _____   **Date:** _____

PORTFOLIO REVIEW OUTCOMES MATRIX

External Portfolio Review for SUNY Gen
Ed Assessment in Basic Communication

NUMBER OF
PORTFOLIOS: 25 out of 125 20%
DATE: 2/28/2004
REVIEWERS: Faith Pivan,
Carolyn Hanlon, Maureen Puetzer

SUNY ESF
ENVIRONMENTAL STUDIES:
THE WRITING PROGRAM
PATRICK LAWLER
EXTERNAL PORTFOLIO REVIEW

OUTCOME	OUTCOME STATEMENT		PERFORMANCE STANDARD	%	AVERAGE TOTALS	SUMMARY
Research	Students will research a topic, develop an argument, and organize supporting details.	4.Exceeding	Student demonstrates thorough understanding of processes/concepts of research and provides new insights.	4		Twenty-five portfolios reviewed. A total of three external reviewers. Each portfolio considered by two reviewers.
		3.Meeting	Student demonstrates complete and accurate understanding of processes/concepts of research.	50		
		2.Approaching	Student demonstrates incomplete and inaccurate understanding of processes/concepts of research.	46		
		1.Not Meeting	Student demonstrates severe misconceptions about processes/concepts of research.	0	2.85	
Critical Thinking	Students will identify, analyze, and evaluate arguments as they occur in their own or others' work. Students will develop well-reasoned arguments.	4.Exceeding	Student demonstrates thorough understanding of processes/concepts of critical thinking and provides new insights.	10		Out of 250 rankings (5x2x25), there were 2 instances when the reviewer gave a 1 ranking.
		3.Meeting	Student demonstrates complete and accurate understanding of processes/concepts of critical thinking	46		
		2.Approaching	Student demonstrates incomplete and inaccurate understanding of processes/concepts of critical thinking.	40		
		1.Not Meeting	Student demonstrates severe misconceptions about processes/concepts of critical thinking.	4	2.55	
Coherent Text Production	Students will produce coherent texts within college-level written forms.	4.Exceeding	Student demonstrates thorough understanding of processes/concepts of coherent text production and provides new insights.	6		There were 14 instances when the reviewer gave a 4 ranking, and 140 instances of a 3 ranking or above.
		3.Meeting	Student demonstrates complete and accurate understanding of processes/concepts of coherent text production.	56		
		2.Approaching	Student demonstrates incomplete and inaccurate understanding of processes/concepts of coherent text production	38		
		1.Not Meeting	Student demonstrates severe misconceptions about processes/concepts of coherent text production.	0	2.77	
Text Revision	Students will demonstrate the ability to revise and improve written texts.	4.Exceeding	Student demonstrates thorough understanding of processes/concepts of text revision and provides new insights.	6		Out of 25 portfolios 8 met or exceeded. 100% were at least approaching
		3.Meeting	Student demonstrates complete and accurate understanding of processes/concepts of text revision.	68		
		2.Approaching	Student demonstrates incomplete and inaccurate understanding of processes/concepts of text revision.	26		
		1.Not Meeting	Student demonstrates severe misconceptions about processes/concepts of text revision.	0	2.72	
Oral Presentations	Students will develop proficiency in oral discourse, and evaluate an oral presentation according to established criteria.	4.Exceeding	Student demonstrates thorough understanding of processes/concepts of oral presentations (delivery and evaluation) and provides new insights.	6		TOTAL PORTFOLIO 13.8 Out of possible total of 20.0
		3.Meeting	Student demonstrates complete and accurate understanding of processes/concepts of oral presentations regarding delivery and evaluation.	68		
		2.Approaching	Student demonstrates incomplete and inaccurate understanding of processes/concepts of oral presentations regarding delivery and evaluation.	26		
		1.Not Meeting	Student demonstrates severe misconceptions about processes/concepts of oral presentations regarding delivery and evaluation...	0	2.90	

Table: Assessment Phase III

Appendix 5

Summary Reports of SUNY Assessment of Majors, 2001-2007

ASSESSMENT OF STUDENT LEARNING OUTCOMES IN THE MAJOR

SUMMARY REPORT

*Use this form to provide a summary report on campus-based assessment
of student learning outcomes in undergraduate degree majors*

> Note: Campuses may wish to include the assessment of student learning outcomes in their undergraduate majors as part of a broader cyclical program review process. The Provost's Advisory Task Force on the Assessment of Student Learning Outcomes recommends that campuses consider engaging in this process within the broader framework of the University Faculty Senate's *Guide for the Evaluation of Undergraduate Academic Programs.*

Name of Institution: __SUNY-ESF__
(Specify name of branch campus, if relevant)

Registered program title: ____Forest Resources Mgt./Natural Resources Mgt.____
(See: www.nysed.gov/heds/irpsl1.html)

Registered award: ___B.S.___ (A.A., B.S., etc.)   **HEGIS:** __0114/0115__

Date of Previous Assessment: _____   **Date of Current Assessment:** __10/1/03__

External Reviewers (name, institution, title):

Dr. David B. Field, Prof., University of Maine and Chair of the Society of American Foresters Accreditation Review Team

Note: The report of the external reviewers should be attached to this summary report.

Campus contact person for this assessment: _Dr. Chad P. Dawson_

Program improvements made as a result of the previous assessment of this major:

Four options in Forest Resources Management were refocused into one degree program in Forest Resources Management and a new degree program in Natural Resources Management.

Major learning outcomes for this program:

The assessment process identified that student knowledge and integrative skills were well evaluated during the field semester and senior year capstone classes.

Measures used to assess these learning outcomes:

One capstone class (FOR 490) on integrating material across the curriculum is designed to measure professional preparation for both the FRM and NRM degrees through team projects, critiques and academic grading.

Major findings of this assessment:

Students performed well overall. More integration of problem-solving and communication skills throughout curriculum was suggested.

Action to be taken in addressing these assessment findings:

Individual course contribution to problem-solving and integration of materials is being reviewed. For example, the freshman orientation course (FOR 132) has been redesigned to directly begin this process for new students in their first semester.

What has been learned that could be helpful to others as they conduct assessment of their majors:

Ongoing assessment of student performance (e.g., portfolios) may be necessary to allow for intervention for those students who are not integrating materials across the curriculum. One integration course in the senior year measures outcomes but doesn't allow time for intervention.

Chief Academic Officer: _____   Date: 10/06/03

ASSESSMENT OF STUDENT LEARNING OUTCOMES IN THE MAJOR

SUMMARY REPORT

*Use this form to provide a summary report on campus-based assessment
of student learning outcomes in undergraduate degree majors*

> Note: Campuses may wish to include the assessment of student learning outcomes in their undergraduate majors as part of a broader cyclical program review process. The Provost's Advisory Task Force on the Assessment of Student Learning Outcomes recommends that campuses consider engaging in this process within the broader framework of the University Faculty Senate's *Guide for the Evaluation of Undergraduate Academic Programs.*

Name of Institution: _____ Environmental Science and Forestry
{ Specify name of branch campus, if relevant }

Registered program title: _____ Wood Products Engineering – Wood Products Option
{ See: www.nysed.gov/heds/irpsl1.html }

Registered award: _____ B.S. _____ (A.A., B.S., etc.)   **HEGIS:**   0999.00

Date of Previous Assessment: _____   **Date of Current Assessment:** December 2002

External Reviewers (name, institution, title):

_____ Dr. Thomas McLain, Oregon State University _____

_____ Dr. Robert Bush, Virginia Tech _____

Note: The report of the external reviewers should be attached to this summary report.

Campus contact person for this assessment: _____ Dr. Robert W. Meyer _____

Program improvements made as a result of the previous assessment of this major:

_____ This was the initial accreditation assessment of the program. _____

_____ Prior to the visit, minor curriculum adjustments were made to comply with ____

_____ requirements established by the Society of Wood Science and Technology. ____

Major learning outcomes for this program:

Provide well-rounded graduates for the forest industry.

Produce graduates who know why wood behaves as it does.

Produce graduates who can contribute to utilization

and production of virtually any wood product.

Major findings of this assessment:

Identified weakness: low enrollment.

Should engage an advisory board.

"Collect feedback on sufficiency of curriculum."

"It is imperative that the CMWPE faculty engage

in a meaningful strategic planning process..."

Measures used to assess these learning outcomes:

Graduates are sought after by forest products employers

Productivity of graduates in their careers.

Success of graduates in industry and graduate schools.

Action to be taken in addressing these assessment findings:

Increase visits to transfer institutions and high schools.

Work to organize a board has commenced.

Alumni survey is being planned, advisory board is being instituted.

Discussions within the faculty are underway.

What has been learned that could be helpful to others as they conduct assessment of their majors:

We really need to implement a two-cycle Assessment process with stronger advisory board input.

Chief Academic Officer: _____   Date: _____

ASSESSMENT OF STUDENT LEARNING OUTCOMES IN THE MAJOR

SUMMARY REPORT

Use this form to provide a summary report on campus-based assessment
of student learning outcomes in undergraduate degree majors

> Note: Campuses may wish to include the assessment of student learning outcomes in their undergraduate majors as part of a broader cyclical program review process. The Provost's Advisory Task Force on the Assessment of Student Learning Outcomes recommends that campuses consider engaging in this process within the broader framework of the University Faculty Senate's *Guide for the Evaluation of Undergraduate Academic Programs.*

Name of Institution: SUNY Environmental Science and Forestry
(Specify name of branch campus, if relevant)

Registered program title: Paper Science and Engineering – Engineering Option
(See: www.nysed.gov/heds/irpsl1.html)

Registered award: B.S. _____ (A.A., B.S., etc.)　　　　**HEGIS:** _____

Date of Previous Assessment: ___ N/A ___　　**Date of Current Assessment:** 1 October 2002

External Reviewers (name, institution, title):

Mr. David D. Eyer, Consultant

Dr. Edward Rosen, EMR Technology Group, Consultant

Dr. John Sears, Montana State University, Professor

Note: The report of the external reviewers should be attached to this summary report.

Campus contact person for this assessment: Dr. Gary M. Scott

Program improvements made as a result of the previous assessment of this major:

The following curricular changes were made prior to the current assessment:

1. Streamlining of pulping and bleaching education in the curriculum into 3 courses instead of 4. In addition, the pulping and bleaching laboratory was better aligned with the lecture course.

2. A pulp and paper laboratory skills course was added to the curriculum to give students needed skills for their internships and subsequent courses.

3. Laboratory exercises added to unit operation engineering courses.

Major learning outcomes for this program:

1. A sound knowledge of science and engineering as applied to paper science and engineering.
2. The ability to conceptualize problems in terms of unifying principles, design, and conduct experiments, and analyze and interpret data.
3. The ability to solve a real engineering problem in a team environment using appropriate design techniques.
4. An ability to engage in life-long learning.
5. Well-developed oral and written communication skills.
6. The ability to work in an industrial position with the pulp, paper, and allied industries.
7. Understand the professional and ethical responsibilities of an engineer.
8. A knowledge of the broad, contemporary issues facing the engineer in global and societal contexts.

Major findings of this assessment:

The recent assessment identified several strengths of the program:

1. The interaction with the industry is particularly strong in terms of internships, co-ops, in the capstone design course, and through interaction with SPPF and ESPRI.
2. The papermaking facilities are excellent and the lectures and laboratories are well coordinated.

A concern cited in the review was that the metrics for outcome assessment were not fully developed and that modern computing software is not integrated into the curriculum.

Measures used to assess these learning outcomes:

Co-op and internship evaluations, graduate student survey, exit interview, Prerequisite exams, evaluation of design projects, alumni surveys, employment surveys, writing program assessment, general education assessment, course Evaluations, homework assignments, laboratory performance, various in-course methods.

Action to be taken in addressing these assessment findings:

The Faculty of Paper Science and Engineering is currently integrating Matlab throughout the curriculum. It is being taught in APM 153 and used in subsequent courses such as PSE 370, PSE 371, PSE 468, and PSE 477. In addition, WinGems is being used in PSE 480, PSE 481, and PSE 468. Graduates should have an understanding of modern computing software.

The assessment and evaluation methods have been strengthened and quantified and documented in an Addendum to the Self-Study. Several new and revised assessment tools will be implemented in the next two years.

What has been learned that could be helpful to others as they conduct assessment of their majors:

A well-crafted set of program outcomes, not only for the program, but for individual courses is very important in the current paradigm. Assessment methods and tools should specifically and quantitatively address these outcomes. The assessment should also be done at different time scales, with some methods offering rapid feedback and the external feedback giving independent and longer-term feedback.

Chief Academic Officer: _____   Date: _____

ASSESSMENT OF STUDENT LEARNING OUTCOMES IN THE MAJOR

SUMMARY REPORT

*Use this form to provide a summary report on campus-based assessment
of student learning outcomes in undergraduate degree majors*

> Note: Campuses may wish to include the assessment of student learning outcomes in their undergraduate majors as part of a broader cyclical program review process. The Provost's Advisory Task Force on the Assessment of Student Learning Outcomes recommends that campuses consider engaging in this process within the broader framework of the University Faculty Senate's *Guide for the Evaluation of Undergraduate Academic Programs.*

Name of Institution: College of Environmental Science and Forestry
(Specify name of branch campus, if relevant)

Registered program title: Chemistry
(See: www.nysed.gov/heds/irpsl1.html)

Registered award: B.S. _____ (A.A., B.S., etc.)   **HEGIS:**   1905.00

Date of Previous Assessment: N/A _____   **Date of Current Assessment:**   June 27, 2005

External Reviewers (name, institution, title):

Dr. Jerome L. Mullin, Professor and Chair, University of New England

Dr. Morton Z. Hoffman, Professor, Boston University

Note: The report of the external reviewers should be attached to this summary report.

Campus contact person for this assessment: Dr. John P. Hassett

Program improvements made as a result of the previous assessment of this major:

An internal program review in ???? led to: .

reduction in total credits to graduate from 134 to 121

preservation of science and math content

provision for one 3-credit elective in most semesters

Major learning outcomes for this program:

Working knowledge of the core areas of chemistry
Working knowledge of a specialized area of chemistry
Safe practice of chemistry
Intellectual tools for solving chemical problems
Chemical communication skills
Practical experience in chemistry

Major findings of this assessment:

produces well-trained and deeply educated graduates
rigorous and offers unique options for specialization
one of the best-kept secrets in higher education in the Northeast
General Chemistry should be taught in smaller sections
some labs could be updated
ACS certification is not essential
modifications needed to achieve ACS certification:
   integrate physical and inorganic chem into labs
   add inorganic chemist to faculty
   continue evolution of analytical chemistry

Measures used to assess these learning outcomes:

Academic performance (exams, papers, reports)

Academic success (GPA)

Retention

Employment and professional school placement

Exit interview

Action to be taken in addressing these assessment findings:

General Chemistry will be taught in 2 or more sections
Additional faculty will be hired to assist with undergraduate teaching loads
Plan will be created for curriculum and resources needed to achieve
   ACS certification without losing existing strengths and uniqueness

What has been learned that could be helpful to others as they conduct assessment of their majors:

The American Chemical Society's (ACS) College Chemistry Consulting Service is a very useful but not very visible resource for these assessments.

ACS certification process is woefully understaffed and is not as flexible as the guidelines imply.

Chief Academic Officer: _____   Date: _____

ASSESSMENT OF STUDENT LEARNING OUTCOMES IN THE MAJOR

SUMMARY REPORT

*Use this form to provide a summary report on campus-based assessment
of student learning outcomes in undergraduate degree majors*

> Note: Campuses may wish to include the assessment of student learning outcomes in their undergraduate majors as part of a broader cyclical program review process. The Provost's Advisory Task Force on the Assessment of Student Learning Outcomes recommends that campuses consider engaging in this process within the broader framework of the University Faculty Senate's *Guide for the Evaluation of Undergraduate Academic Programs.*

Name of Institution: ___S.U.N.Y. College of Environmental Science and Foresry___
(Specify name of branch campus, if relevant)

Registered program title: ___Environmental Biology___
(See: www.nysed.gov/heds/irpsl1.html)

Registered award: ___BS___ (A.A., B.S., etc.)   **HEGIS:** _____

Date of Previous Assessment: ___none___ **Date of Current Assessment:**   15 June 2005

External Reviewers (name, institution, title):

> Dr. Sandra Michael, Professor. SUNY Binghamton, NY, Department of Biology
>
> Dr. James Diana, Professor. University of Michigan, School of Natural Resources
>
> Dr. Daniel Edge, Professor and Chair, Oregon State University, Department of Fisheries and Wildlife

Note: The report of the external reviewers should be attached to this summary report.

Campus contact person for this assessment: _Dudley J. Raynal, Dean of Instruction and Graduate Studies_

Program improvements made as a result of the previous assessment of this major:

> This is the first formal assessment of the Environmental Biology major. The Environmental and Forest Biology program was reviewed as part of Middle States accreditation in 2001. Opportunities to highlight existing options within Environmental and Forest Biology emerged in 2001, and by the Fall of 2004 a set of majors was completed that included Environmental Biology (the base major) and six specialized majors (Biotechnology, Aquatic and Fisheries Science, Conservation Biology, Forest Health, Natural History and Interpretation, Wildlife Science). Development of the set of majors enhanced opportunities for advising and curricular refinement.

Major learning outcomes for this program:

1. Students should be able to demonstrate:
   a. broad elementary knowledge in basic science
   b. advanced knowledge of biology at molecular, cellular and organismal levels
   c. understanding of the interrelationships of organisms in natural environments at local to global levels, and be competent in assessing the status of populations
   d. competence in basic and applied mathematics
   e. skill in group efforts and in communicating knowledge and ideas

2. Students should be able to evaluate biological questions in a "real-world" setting, and to solve problems using the scientific method, through observation, experimentation and hypothesis testing.

3. Students should be prepared and well-positioned for seeking employment in some area of EB. or to gain acceptance to programs of advanced study.

Measures used to assess these learning outcomes:

1. Successful completion of requirements and course-specific evaluations in:
   a. Gen. Botany, Prin. of Zoology, Gen. Chem., Organic Chem and Gen. Physics.
   b. Principles of Genetics, Cell Physiology, Structure/function elective.
   c. Global Environment, General Ecology, EFB 202 (at CLBS) and diversity electives
   d. Survey of Calculus, Intro to Probability & Statistics
   e. Writing classes (CLL 190, 290), Orientation (EFB 132), EFB 202, written and oral assignments in required classes

2. Successful completion of Intro. to Probability and Statistics, Principles of Genetics, and research project in EFB 202 (Ecol. Monitoring and Biodiversity Assessment).

3. Alumni surveys conducted by Office of Career and Counseling Services; Examination of anonymous results from Graduate Record Examination, subject test in Biology.

Major findings of this assessment:

The self-study by the Faculty of Environmental & Forest Biology and the external reviewers agree that the program is strong, well conceived, and produces graduates who are well positioned to enter the job market or to continue in advanced study. Areas of possible improvement in the program and its assessment that were considered most important are:

1. Writing standards may not be evenly applied throughout the curriculum
2. Mathematical and statistical skills could be emphasized more evenly in the curriculum
3. Means for evaluating student perceptions of the program and their career success could be improved.
4. There are currently few specific metrics for learning outcome assessment

Action to be taken in addressing these assessment findings:

1/2. During the next 6 months, the Faculty of Environmental & Forest Biology department will examine specific ways to continually reinforce and evaluate basic skills in writing and mathematics throughout the curriculum.

3. Over the next year, the Faculty will develop a strategy for better measuring the principal learning outcomes, with the help of appropriate college administrative offices.

4. The Faculty plans to introduce an exit interview of graduating seniors, and a follow-up alumni survey 2-5 years after graduation; the current survey takes place shortly after graduation.

What has been learned that could be helpful to others as they conduct assessment of their majors:

Much of what goes into an assessment is similar for all programs offered by the Faculty of Environmental & Forest Biology, and indeed for all programs at ESF. Therefore, this process will proceed more smoothly, and have more acceptable results, if the college administration provides a more specific assessment framework and training for implementation of the SUNY assessment requirements. Also, since similar data (applications, enrollments, graduation rates, etc.) are required for all self-studies, the Office of Information Technology and Institutional Planning should establish procedures for providing essential student data as a matter of course; i.e. to be used as a common and uniform baseline from which self-studies can be initiated.

Chief Academic Officer: _____   **Date:** _____

ASSESSMENT OF STUDENT LEARNING OUTCOMES IN THE MAJOR

SUMMARY REPORT

*Use this form to provide a summary report on campus-based assessment
of student learning outcomes in undergraduate degree majors*

> Note: Campuses may wish to include the assessment of student learning outcomes in their undergraduate majors as part of a broader cyclical program review process. The Provost's Advisory Task Force on the Assessment of Student Learning Outcomes recommends that campuses consider engaging in this process within the broader framework of the University Faculty Senate's *Guide for the Evaluation of Undergraduate Academic Programs.*

Name of Institution: ___S.U.N.Y. College of Environmental Science and Forestry___
{ Specify name of branch campus, if relevant }

Registered program title: ___Environmental Studies___
{ See: www.nysed.gov/heds/irpsl1.html }

Registered award: ___BS___ (A.A., B.S., etc.)   **HEGIS:** _____

Date of Previous Assessment: ___none___   **Date of Current Assessment:** 22-24 March 2005

External Reviewers (name, institution, title):

> Dr. Burrell E. Montz, SUNY Binghamton, Professor of Geography.
>
> Dr. William Rees, University of British Columbia, Professor of Community and Regional Planning.
>
> Dr. Cynthia Fridgen, Michigan State University, Professor Emeritus and Immediate past President of the National Association of Environmental Professionals.

Note: The report of the external reviewers and the self-study report should be attached to this summary report.

Campus contact person for this assessment: ___Bruce C. Bongarten, Provost and Vice President for Academic Affairs___

Program improvements made as a result of the previous assessment of this major:

> This is the first formal assessment of the Environmental Studies major. Numerous curriculum changes have been made over the years, as documented in the Self-Study report for the assessment. The last major program revision was in 2004 when the core curriculum was revised and upper division options in Environmental Communication and Culture, Environmental Policy, and Biological Science Applications were renewed and formalized. Prior to that major revisions were made in 1988-89 under an administrative charge.

Major learning outcomes for this program:

1. Students should be able to demonstrate the integration of natural sciences, social sciences, and humanities, including: a. the ability to apply knowledge of mathematics, natural science, social science, and humanities; b. the ability to analyze and interpret social and natural science data; c. the ability to critically analyze cultural texts related to Nature and environmental issues; d. the ability to effectively participate in interdisciplinary contexts; and e. the ability to think critically in defining and addressing environmental problems.
2. Students should have an understanding of their civic and ethical responsibility.
3. Students should be able to communicate effectively.
4. The broad education necessary to understand the implications of proposed solutions in a global and societal context.
5. A recognition of the need for, and an ability to engage in life-long learning.

Major findings of this assessment:

The assessment determined that the program was largely successful in meeting its outcomes given current conditions. However, it also found that there were a number of gaps in the curriculum that need to be filled, including the need for more appropriate foundational and gateway courses, the need for at least one course in environmental ethics/philosophy, the need for more opportunities for students to develop skills, the need for more program options in the upper division, and the need for better integrative experiences. Other concerns are that the program needs to provide greater programmatic focus and substantive structure than is currently possible and that students lack opportunities to develop adequate identification with their program.

Measures used to assess these learning outcomes:

Graded assignments including research papers, in-class exercises, discussions & debates, group problem solving exercises, simulation exercises, pre-course assessments, examinations with embedded questions, pre-and post testing, qualitative portfolio examination, post-course evaluation of written work, synthesis papers, general education assessment, writing program assessment, alumni surveys, internship evaluations and reports. Also see table "Environmental Studies Courses and their relevance to Outcomes" in the Self-Study report which outlines which courses help to fulfill which learning outcomes.

Action to be taken in addressing these assessment findings:

The Faculty of Environmental Studies intends to petition the College for greater financial and administrative support, and for new hires in order to address curriculum gaps, enhance learning opportunities within existing program offerings, and address unequal administrative loads. The Faculty will be revising the mission statement, looking to enhance our systems for assessment, exploring opportunities to create greater programmatic integration, investigating new methods for delivering professional technical advising, re-evaluating the core curriculum, and exploring the potential for new option areas.

What has been learned that could be helpful to others as they conduct assessment of their majors:

Assessments of interdisciplinary programs are most effective when they follow an inclusive process that takes seriously the concerns of students, alumni, faculty, and administrators throughout the program assessment cycle and even between cycles. There are no pre-established assessment criteria for Environmental Studies Program, so the Faculty of Environmental Studies developed their own assessment criteria and rubrics in conjunction with the Provost. The FES has innovated an Environmental Studies Alumni survey, which is unique within the college, and is developing other assessment data tools. The FES would be willing to share its experience with other Environmental Studies/Environmental Science programs within SUNY.

Chief Academic Officer: _____

Date: _____

ASSESSMENT OF STUDENT LEARNING OUTCOMES IN THE MAJOR

SUMMARY REPORT

Use this form to provide a summary report on campus-based assessment of student learning outcomes in undergraduate degree majors

> Note: Campuses may wish to include the assessment of student learning outcomes in their undergraduate majors as part of a broader cyclical program review process. The Provost's Advisory Task Force on the Assessment of Student Learning Outcomes recommends that campuses consider engaging in this process within the broader framework of the University Faculty Senate's *Guide for the Evaluation of Undergraduate Academic Programs.*

Name of Institution: SUNY ESF Ranger School
(Specify name of branch campus, if relevant)

Registered program title: Forest Technology
(See: www.nysed.gov/heds/irpsl1.html)

Registered award: AAS   **HEGIS:** 0116.00

Date of Previous Assessment: 10/1995   **Date of Current Assessment:** 10/19/05

External Reviewers (name, institution, title):

Robert Carter, Assistant Professor, Jacksonville State University,   Douglas Staiger, Chair and

Instructor, Haywood Community College,   Barbara Pietrucha, New Jersey High School Teacher,

Tom Gerow, Wagner Lumber Company

Note: The report of the external reviewers should be attached to this summary report.

Campus contact person for this assessment: Dr. Bruce Bongarten or Christopher Westbrook

Program improvements made as a result of the previous assessment of this major:

Although the previous assessment offered no major recommendations for improvements a number of new initiatives were undertaken. Perhaps the most important initiative was a review of the curriculum and further development and revision of the curriculum to reflect changes in forest technology, include more team teaching and revise the number of credits for each course to reflect common university standards.

Major learning outcomes for this program:

Knowledge of forestry, timber management, & natural resources

Ability to converse with professionals

Ability to work with others and provide leadership

Professionalism

Maintaining & enhancing biological diversity &environmental quality

Major findings of this assessment:

All standards were met with no actions required.

Measures used to assess these learning outcomes:

Student Portfolios, Field Proficiency Examinations, Student classroom Presentations

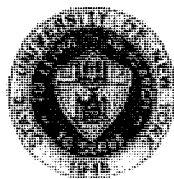Classroom examinations, student group projects

(the above measures are used assessing major learning outcomes listed)

Action to be taken in addressing these assessment findings:

What has been learned that could be helpful to others as they conduct assessment of their majors:

Chief Academic Officer: _____   Date: ___1/30/06___

ASSESSMENT OF STUDENT LEARNING OUTCOMES IN THE MAJOR

SUMMARY REPORT

Use this form to provide a summary report on campus-based assessment of student learning outcomes in undergraduate degree majors

> Note: Campuses may wish to include the assessment of student learning outcomes in their undergraduate majors as part of a broader cyclical program review process. The Provost's Advisory Task Force on the Assessment of Student Learning Outcomes recommends that campuses consider engaging in this process within the broader framework of the University Faculty Senate's *Guide for the Evaluation of Undergraduate Academic Programs.*

Name of Institution: ___SUNY College of Environmental Science and Forestry___
(Specify name of branch campus, if relevant)

Registered program title: ___Bachelor of Landscape Architecture___
(See: www.nysed.gov/heds/irpsl1.html *)*

Registered award: ___BLA___ (A.A., B.S., etc.)   **HEGIS:** ___0204___

Date of Previous Assessment: ___Spring 2001___   **Date of Current Assessment:** ___Spring 2006___

External Reviewers (name, institution, title):

___Dennis L. Law, Kansas State University, Dean/Architecture, Planning and Design___

___Scott S. Weinberg, University of Georgia, Professor/School of Environmental Design___

___Edward Blake, The Landscape Studio, Practitioner___

Note: The report of the external reviewers should be attached to this summary report.

Campus contact person for this assessment: ___Richard S. Hawks, FLA Chair___

Program improvements made as a result of the previous assessment of this major:

The Bachelor of Landscape Architecture Program was last reviewed in April of 2001; accreditation was granted

by the Landscape Architecture Accreditation Board in July 2001. No weaknesses were noted at that time

and no recommendations were made for improvement requiring documentation in the 2006 self-study report.

Major learning outcomes for this program:

Recall or interpretation of knowledge

Application of knowledge

Analysis or evaluation

Synthesis

Major findings of this assessment: *

Standards:

- Program has a clearly defined mission supported by educational objectives appropriate to the profession of landscape architecture

- Program has authority and resources to achieve its educational objective
- Program content includes core knowledge, skills and application of landscape architecture, landscape architecture history, philosophy, theory, values, ethics, practice, planning, design, implementation and management
- Qualifications, academic position and professional activities of faculty and instructional personnel promote and enhance the academic mission of objectives
- Program demonstrates that students are adequately prepared to pursue career in landscape architecture
- Program provides evidence of alumni's professional accomplishment and their involvement in advancing the program
- Program provides evidence of interaction with practitioners from landscape architecture and other disciplines
- Program promotes positive relationships with the university and community
- Faculty, students and staff have access to facilities, equipment, library and other information systems necessary for conducting profession studies

Measures used to assess these learning outcomes:

In addition to individual and group projects, papers, oral presentations and/or discussion, portfolios, and examinations, a variety of informal assessment tools (traditional to design program) including semester end portfolio reviews, jury critiques with invited critics, etc. are used. Development of a more systematic method of assessment focusing on critical professional skills and knowledge is currently underway.

Action to be taken in addressing these assessment findings: *

Standard met with recommendation that process begin to develop a measurable assessment strategy of the student experience to insure it is meeting its objectives and stated student-learning outcomes

N/A; Per LAAB: Standard Met - No recommendation
N/A; Per LAAB: Standard Met - No recommendation

N/A; Per LAAB: Standard Met - No recommendation

N/A; Per LAAB: Standard Met - No recommendation

N/A; Per LAAB: Standard Met - No recommendation

N/A; Per LAAB: Standard Met - No recommendation

N/A; Per LAAB: Standard Met - No recommendation
N/A; Per LAAB: Standard Met - No recommendation

What has been learned that could be helpful to others as they conduct assessment of their majors:

Chief Academic Officer: _Brad Bryton_   Date: _1/18/07_

* A copy of the Landscape Architecture Accreditation Board decision relative to our accreditation review is enclosed. Submission of interim reports are required on an annual basis.

ASSESSMENT OF STUDENT LEARNING OUTCOMES IN THE MAJOR

SUMMARY REPORT

*Use this form to provide a summary report on campus-based assessment
of student learning outcomes in undergraduate degree majors*

> Note: Campuses may wish to include the assessment of student learning outcomes in their undergraduate majors as part of a broader cyclical program review process. The Provost's Advisory Task Force on the Assessment of Student Learning Outcomes recommends that campuses consider engaging in this process within the broader framework of the University Faculty Senate's *Guide for the Evaluation of Undergraduate Academic Programs*.

Name of Institution: ___ SUNY College of Environmental Science and Forestry ___
(Specify name of branch campus, if relevant)

Registered program title: ___ Paper Engineering ___
(See: www.nysed.gov/heds/irpsl1.html *)*

Registered award: ___ B.S. ___ (A.A., B.S., etc.)   **HEGIS:** ___

Date of Previous Assessment: October 2002__   **Date of Current Assessment:**   October 2006

External Reviewers (name, institution, title):

David Dolling, Professor, University of Texas

Robert Gustafson, Associate Dean, College of Engineering, Ohio State University

W. Leigh Short,, Consultant

Note: The report of the external reviewers should be attached to this summary report.

Campus contact person for this assessment: ___ Dr. Gary M. Scott ___

Program improvements made as a result of the previous assessment of this major:

The assessment and evaluation methods have been strengthened and quantified and documented in an Addendum to the Self-Study. Several new and revised metrics for outcome assessment tools have been implemented in the department.

Major learning outcomes for this program:

1. A sound knowledge of science and engineering as applied to paper science and engineering.
2. The ability to conceptualize problems in terms of unifying principles, design, and conduct experiments, and analyze and interpret data.
3. The ability to solve a real engineering problem in a team environment using appropriate design techniques.
4. An ability to engage in life-long learning.
5. Well-developed oral and written communication skills.
6. The ability to work in an industrial position with the pulp, paper, and allied industries.
7. Understand the professional and ethical responsibilities of an engineer.
8. A knowledge of the broad, contemporary issues facing the engineer in global and societal contexts.

Major findings of this assessment:

The strengths of the program include:
1. The capstone design experience split between two courses.
2. The strong and continuous interaction between the faculty and the Syracuse Pulp and Paper Foundation.
3. The senior course (PSE 468) where students manufacture 1000 lb of paper is well-received by students
4. The students are enthusiastic about the program and in high demand nationally by industry.
5. The required internship provides valuable industrial experience to the students and feedback to the faculty.

The following concerns were cited:
1. The equipment is old and may result in safety issues.
2. The department uses "soft money" to support the undergraduate laboratories and program.

Measures used to assess these learning outcomes:

Co-op and internship evaluations, graduate student survey, exit interview, prerequisite exams, evaluation of design projects, alumni surveys, employment surveys, writing program assessment, general education assessment, course Evaluations, homework assignments, laboratory performance, various in-course methods.

Action to be taken in addressing these assessment findings:

The department has engaged in a review of the facilities throughout Walters Hall and developed a plan for improvement in the building infrastructure and equipment for the undergraduate educational program. Funding for these improvements is being sought through a number of sources including a capital campaign through the Syracuse Pulp and Paper Foundation, matching funding from the College administration, and continued support through department resources including "soft" money account.

Recent renovations in Walters Hall include replacement of all water pipes in the building, new ceilings and lighting, renovated bathrooms, and asbestos abatement throughout the building.

What has been learned that could be helpful to others as they conduct assessment of their majors:

A well-crafted set of program outcomes, not only for the program, but for individual courses is very important in the current paradigm. Assessment methods and tools should specifically and quantitatively address these outcomes. The assessment should also be done at different time scales, with some methods offering rapid feedback and the external feedback giving independent and longer-term feedback. The work that was done to systematize our assessment process was well-reflected in the review as no concerns were cited with the assessment process.

Chief Academic Officer: _____   Date: _____

Appendix 6

Current Program Assessment Plan Example

Bachelor of Science in Aquatic and Fisheries Science (AFS)   December 24, 2008 (K. Schulz, D. Stewart and K. McGrath)

Learning Outcome (what students should be able to do)	Where Addressed in the Program[1]	How Assessed[2]	Assessment Results (see following narrative)	Response to Results (see following narrative)
1. Demonstrate knowledge of structure, function and organization at molecular, cellular and organismal levels, as well as micro- and macro-evolutionary processes that contribute to adaptations and biodiversity.	EFB 307, EFB 311, EFB 320, EFB 325, EFB 497	A. Distribution of mean performance of AFS students in two required courses, EFB 307 and EFB 325, as measured by final grades. B. Distribution of mean performance of AFS students in two required courses, EFB 311 and EFB 320, as measured by final grades. C. Performance on components of comprehensive exam (administered in EFB 497 Aquatic Senior Synthesis Seminar) that relate to this outcome.	These assessment methods will be applied to students for the first time in the Summer and Fall of 2009.	Revised performance tracking in relevant courses and introduction of new course, EFB 497. Aquatic Senior Synthesis Seminar, beginning Spring 2009
2. Demonstrate broad familiarity with fishes and other aquatic organisms from both freshwater and marine environments, as well as breadth in organismal diversity of plants or microbes and animals, including their taxonomy, evolution, anatomy, physiology, distribution, and life history.	EFB 424[3], EFB 486, EFB 497	A. Performance on organismal diversity components of EFB 424 (hands-on demonstration exercises and exam). B. Overall performance of AFS students in EFB 486, as measured by final grade distribution. C. Performance on organismal diversity component of final synthesis project in EFB 497. D. Performance on diversity component of comprehensive exam administered in EFB 497.	As in 1.	As in 1. In addition, re-description of EFB 524 as EFB 424[3] (in progress).
3. Demonstrate broad familiarity with aquatic ecology and environmental systems science, including basic knowledge of physical sciences (e.g., physical, chemical and hydrologic properties of water) and the distribution and functioning of aquatic ecosystems.	EFB 424[3], EFB 497	A. Performance of AFS students in EFB 424[3], as measured by final grade distribution. B. Performance on ecosystem component of final synthesis project in EFB 497. C. Performance on components of comprehensive exam in EFB 497 that relate to this outcome.	As in 1.	As in 2.
4. Demonstrate understanding of economics and natural resource management principles and techniques (e.g., assessment, intervention, evaluation, and policy development), and appreciate the	FOR 207, EFB 497	A. Overall performance of AFS students in FOR 207 (or equivalent), as measured by final grade distribution. B. Performance on management component of final synthesis project in EFB 497.	As in 1.	As in 1.

complexity of natural/human systems wherein management is applied.		C. Performance on management component of comprehensive exam in EFB 497.	As in 1.	As in 2.	
5. 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.	APM 391, EFB 424³, EFB 497	A. Overall performance of AFS students in APM 391, as measured by final grade distribution. B. Distribution of mean performance of AFS students on applied problem sets in EFB 424³. C. Performance on final synthesis project in EFB 497.	As in 1.	As in 2.	
6. Communicate scientific concepts, observations and experimental results in a variety of oral and written formats.	CLL 190, CLL 290, EFB 424³, EFB 486, EFB 497	A. Distribution of mean performance of AFS students in two required courses, CLL 190 and CLL 290, as measured by final grades B. Performance of AFS students on topic paper in EFB 424³. C. Performance of AFS students on final term paper in EFB 486. D. Performance on presentation and written portion of final synthesis project in EFB 497.	As in 1.	As in 2.	

Explanation

History

Between 1965-2002, the Bachelor of Science in Environmental & Forest Biology was the single undergraduate program offered by the Department of Environmental & Forest Biology. Because students believed their investments in specialization were not rewarded with an appropriate degree title, and to increase visibility and recruitment potential in traditional or growing fields, six specialized programs were initiated in 2004, Aquatic and Fisheries Science among them.

Assessment cycle.

Data used to assess each learning outcome will be collected annually, beginning in 2009. Full program assessment will occur at 3-year intervals, beginning in 2012, but we will evaluate our assessment methods in 2010.

Results of previous assessment.

Formal learning outcomes were established only recently, so no assessment has yet focused on them. Based on unstructured assessments including faculty discussion and feedback from students, we have implemented or initiated the following changes.

1. Course revisions.

A. Limnology requirement

When the AFS major was formulated, two courses (EFB 421 or EFB 524) could be used to satisfy the general limnology/aquatic systems science requirement. However, EFB 421, The Ecology of Fresh Waters, a three-week field course taught at the college's Cranberry Lake Field Station, is offered irregularly, and is not as comprehensive as we now believe is necessary for training AFS majors. Therefore, we are initiating a revision and re-description of EFB 524 as a shared-resource 4XX/6XX course (with a separate graduate student module); this revised Limnology course includes more hands-on activities, applied problems, and case study exercises than had been utilized in EFB 524. All undergraduate AFS majors will now be required to take this new Limnology course, EFB 4XX (likely EFB 424). This will permit more uniform and complete training for AFS students, as well as allowing this class to be used in various assessment activities.

B. Ichthyology requirement

Originally, two courses (EFB 388 and EFB 486) could be used to satisfy the Ichthyology requirement. EFB 388 is a two-week intensive field course taught at the college's Cranberry Lake Field Station. All undergraduate AFS majors will now be required to take the semester-long Ichthyology (EFB 486), although EFB 388 will satisfy the second field course requirement (directed elective) and is still likely to be highly subscribed by AFS students.

Previously, the use of the important Limnology and Ichthyology courses in program assessment was hampered in that students had different experiences; these changes will make the AFS curriculum, and therefore its assessment, more uniform.

2. Addition of a senior synthesis seminar

Other successful majors at ESF have implemented a capstone experience for their students, or have taken steps to initiate one. In conversations with faculty and students, we realized that a similar synthetic course would benefit AFS students for several reasons. First, along with the above changes, all students will now share three core aquatics courses: EFB 424, EFB 486, and the new capstone Aquatic Senior Synthesis Seminar EFB 497; this ensures that our curricular goals are met and can be assessed. Second, the capstone seminar will offer the opportunity for AFS majors to practice and synthesize their diverse experiences at ESF by following the full scientific process from hypothesis development through testing and final analysis, and then presenting their work to classmates and the AFS faculty. Finally, students in this capstone seminar will take a comprehensive e program.

AQUATIC AND FISHERIES SCIENCE MAJOR

Objectives Linked to Curriculum	Learning Objectives						Objectives Listed
	1	2	3	4	5	6	
REQUIRED COURSES							1) structure, function, organization, and evolution
CLL190 Writing and the Environment						●	2) ichthyology and organismal diversity
CLL290 Writing, Humanities & Environment						●	3) limnology and environmental systems science
EFB101 General Bio I: Organismal Bio & Ecol	●	●					4) economics and management
EFB102 General Biology I Laboratory	●				●		5) analytical tools
EFB103 General Bio II: Cell Biology & Genetics	●						6) communications
EFB104 General Biology II Laboratory	●				●		
EFB120 Global Environment			●	●			
EFB132 Orientation Seminar:						●	
EFB202 Ecol Monitoring & Bio Assessment CLBS	●	●			●	●	
FCH150 General Chemistry Lec I			●				
FCH151 General Chemistry Lab I			●		●		
FCH152 General Chemistry Lec II			●				
FCH153 General Chemistry Lab II			●				
FCH210 Elements of Organic Chemistry			●				
PHY101 Major Concepts of Physics I			●		●	●	
APM105 Survey of Calculus I					●	●	
FOR207 Introduction to Economics				●			
APM391 Introduction to Probability & Statistics					●	●	
EFB307 Principles of Genetics	●						
EFB308 Principles of Genetics Laboratory	●				●		
EFB311 Principles of Evolution	●						
EFB320 General Ecology	●				●		
EFB325 Cell Physiology	●				●		
EFB486 Ichthyology		●			●		
EFB424 Limnology		●	●		●		changed number from 524 to 424
EFB497 AFS Senior Synthesis Seminar (1 CR)	●	●	●	●	●	●	Includes comprehensive test to assess Obj. 1-4
DIRECTED ELECTIVES							
A. Field Experience Elective					●		
B. Structure and Function	●						
C1. Organismal Diversity -- Plants and Microbes		●					
C2. Organismal Diversity -- Invert. and Vert. Animals		●					
D. Physical/Chemical Environment			●				
E. Environmental Systems Science			●				
F. Management				●			
G. Analytical Tools					●		
H. Communications						●	

Program of Study:Aquatic and Fisheries Science
Advisor:

Printed: August 05, 2008

Entered: 2008 as a Freshman

Admission Officer:	Date:	This date indicates that all Admissions requirements have been satisfied.

REQUIRED COURSES   EARNED COURSES

CORE COURSE REQUIREMENTS (total 71 credit hours for freshman entrants, 70 for transfer students)

	Offered	Credits	ID	Credits	Transfer College	- - - ESF - - Semester	Grade	Type
CLL190 Writing and the Environment	F	3						
CLL290 Writing, Humanities & Envrn	S	3						
EFB101 General Bio I: Organismal Bio & Ecol	F	3						
EFB102 General Biology I Laboratory		1						
EFB103 General Bio II: Cell Biology & Genetic:	S	3						
EFB104 General Biology II Laboratory	S	1						
EFB120 Global Environment	F,S	3						
EFB132 Orientation Seminar: EFB [1]	F	1						
EFB307 Principles of Genetics	F	3						
EFB308 Principles of Genetics Laboratory	F	1						
EFB202 Ecol Monitoring & Bio Assessment	CLBS	3						
EFB311 Principles of Evolution	S	3						
EFB320 General Ecology	F	4						
EFB325 Cell Physiology	F	3						
EFB486 Ichthyology [4]	S	3						
EFB524 Limnology [5]	F	3						
FOR207 Introduction to Economics	F,S	3						
FCH150 General Chemistry Lec I	F	3						
FCH151 General Chemistry Lab I	F	1						
FCH152 General Chemistry Lec II	S	3						
FCH153 General Chemistry Lab II	S	1						
FCH210 Elements of Organic Chemistry [2]	S	4						
PHY101 Major Concepts of Physics I [3]	F	4						
APM105 Survey of Calculus I	F,S	4						
APM391 Introduction to Probability & Statistics	F,S	3						
One of the following (·) choices[6]:		**4**						
• APM106 Survey of Calculus II	F,S							
• PHY102 Major Concepts of Physics II	S							
• FCH223 Organic Chemistry II	S							
with FCH224 Organic Chemistry Lab II	S							

Total Hours

REQUIRED COURSES   EARNED COURSES

GENERAL EDUCATION REQUIREMENTS (12 credit hours beyond the core: see list in Information Items)

	Offered	Credits	ID	Credits	Transfer College	- - - ESF - - Semester	Grade	Type
American History		3						
Western Civilization		3						
Other World Civilization		3						
The Arts		3						

Program of Study:Aquatic and Fisheries Science
Advisor:
Entered: 2008 as a Freshman

DIRECTED ELECTIVES (at least 27 credit hours; see lists in Information Items)

ID	Credits	Transfer College	ESF Semester	Grade	Type

Total Hours

DIRECTED ELECTIVES (see list below)
A. Field Experience Elective	NOT YET MET
B. Structure and Function	NOT YET MET
C. Organismal Diversity	
1. Plants and Microbes	NOT YET MET
2. Invertebrate and Vertebrate Animals	NOT YET MET
D. Physical/Chemical Environment	NOT YET MET
E. Environmental Systems Science	NOT YET MET
F. Management	NOT YET MET
G. Analytical Tools	NOT YET MET
H. Communications	NOT YET MET

OPEN ELECTIVES (16 credit hours available; 17 for transfer students)

ID	Credits	Transfer College	ESF Semester	Grade	Type

Total Hours

SUMMARY

Required:	126
Earned:	0
In Progress:	0
Deficient:	0

Program of Study:Aquatic and Fisheries Science
Advisor:
Entered: 2008 as a Freshman

FOOTNOTES

[1] Transfer students instead take ESF332 Seminar for New Transfer Students (0 credits).

[2] FCH 210 is a survey course that will not prepare students for further organic chemistry or biochemistry courses. FCH 221 222 (taken together) will also satisfy the organic chemistry requirement, but this is recommended only if the second set of courses (FCH 223, 224) is also planned (see your advisor).

[3] Physics 211 and 221 (taken together) will also satisfy this requirement and, along with Physics 212 and 222, should be considered by students in pre-health professions and certain other career paths (see your advisor).

[4] EFB 388 (Ecology of Adirondack Fishes) at CLBS can be substituted for EFB 486.

[5] EFB 421 (Ecology of Fresh Waters) at CLBS can be substituted for EFB 524.

[6] A second course in a calculus, physics or organic chemistry sequence is required. It is best to schedule the second course immediately following the first, in place of one elective in the typical schedule (e.g. take calculus II in the freshman Spring, or physics II in the sophomore Spring). If the two-course sequence in organic chemistry is chosen (footnote 2), it should start in the sophomore Fall.

INFORMATION ITEMS

TYPICAL SCHEDULE
Freshman year
Fall

EFB101	General Bio I: Organismal Bio & Ecol	3
FCH150	General Chemistry Lec I	3
FCH151	General Chemistry Lab I	1
APM105	Survey of Calculus I	4
CLL190	Writing and the Environment	3
EFB132	Orientation Seminar: EFB	1
	Elective	1
	Total Credits	**16**

Spring

EFB103	General Bio II: Cell Biology & Genetics	3
FCH152	General Chemistry Lec II	3
FCH153	General Chemistry Lab II	1
	Elective	7
	Total Credits	**14**

Summer

EFB202	Ecol Monitoring & Bio Assessment	3
SUMMFE	Field Elective	3
	Total Credits	**6**

Sophomore year
Fall

PHY101	Major Concepts of Physics I	4
FOR207	Introduction to Economics	3
EFB320	General Ecology	4
	Elective	3
	Total Credits	**14**

Spring

CLL290	Writing, Humanities & Envrn	3
EFB120	Global Environment	3
FCH210	Elements of Organic Chemistry	4
	Elective	6
	Total Credits	**16**

Junior year
Fall

EFB325	Cell Physiology	3
EFB307	Principles of Genetics	3
EFB308	Principles of Genetics Laboratory	1

Junior year
Fall

	Elective	7
	Total Credits	**14**

Spring

APM391	Introduction to Probability & Statistics	3
EFB311	Principles of Evolution	3
EFB486	Ichthyology	3
	Elective	6
	Total Credits	**15**

Senior year
Fall

EFB524	Limnology	3
	Elective	13
	Total Credits	**16**

Spring

	Elective	15
	Total Credits	**15**

GENERAL EDUCATION COURSES (in areas not covered by core courses).

These are the approved ESF courses. A full list, including those offered at Syracuse University, is available from the ESF catalog (http://www.esf.edu/registrar/catalog/). See also ESF Registrar's webpage for current Gen Ed offerings (http://www.esf.edu/registrar/).

AMERICAN HISTORY

EST201	American History: Reconstruction to Present (3 cr.) S
EST361	History/Am Envrn Movement (3 cr.) F
FOR204	Natural Resources in American History (3 cr.) F

WESTERN CIVILIZATION

EIN471	History of Landscape Arch (3 cr.) S
FOR203	Western Civilization & the Envrn (3 cr.) S

OTHER WORLD CIVILIZATIONS

EST200	Cultural Ecology (3 cr.)

THE ARTS

EFB215	Interpreting Science Through Art (3 cr.) F
LSA182	Drawing Studio (3 cr.) S
LSA205	Art,Culture&Landscape I (3 cr.) F
LSA206	Art,Culture&Landscape II (3 cr.) S
PSE201	Art &Early History/Papermaking (3 cr.) F

American History - EIN 371, EST 361, and ETS 116 are only for students scoring above 84 on the U.S. History Regents examination.

DIRECTED ELECTIVES (see list below)

To ensure both strength and breadth of knowledge, 27 elective credit hours must be obtained through courses in the following subject areas.

Program of Study: Aquatic and Fisheries Science
Advisor:
Entered: 2008 as a Freshman

A. Field Experience Elective

At least three elective credits must come from an approved field course in biology (this is in addition to the core field course, EFB202). These credits may be obtained through an elective course at our Cranberry Lake Biological Station, an approved internship (EFB420) or field trip course (EFB500), or EFB418 (Interpretation of Field Biology). Approved field courses from other institutions can also fulfill this requirement.

B. Structure and Function

At least 3 credit hours must be in the subject area of organism-level physiology, anatomy, or development. The list of allowable courses below may vary slightly from year to year.

EFB385	Comparative Vertebrate Anatomy (4 cr.) S
EFB427	Plant Developmental Biology (3 cr.) F
EFB462	Animal Physiology: Environmental and Ecological (3 cr.) F
EFB530	Plant Physiology (3 cr.) S
EFB570	Insect Physiology (3 cr.) S
BIO447	Immunology (3 cr.) S
BIO503	Developmental Biology (3 cr.) S

C. Organismal Diversity

To encourage breadth in organism-level biology, students must complete (in addition to the core requirement of EFB 486 or EFB388) at least 3 credit hours in each of the following two categories:

1. Plants and Microbes

EFB303	Introductory Environmental Microbiology (4 cr.) F
EFB326	Diversity of Plants (3 cr.) S
EFB336	Dendrology (3 cr.) F
EFB340	Forest and Shade Tree Pathology (3 cr.) S
EFB440	Mycology (3 cr.) F
EFB446	Ecology of Mosses (3 cr.) S
EFB535	Systematic Botany (3 cr.) F

2. Invertebrate and Vertebrate Animals

EFB352	Elements of Entomology (3 cr.) F
EFB355	Invertebrate Zoology (4 cr.) S
EFB482	Ornithology (4 cr.) F
EFB483	Mammal Diversity (3 cr.) S
EFB485	Herpetology (3 cr.) F
EFB554	Aquatic Entomology (3 cr.) F

D. Physical/Chemical Environment

To encourage understanding and familiarity with the aquatic habit, students must complete at least 3 credit hours from one of the following courses:

EFB415	Ecological Biogeochemistry (3 cr.)	**F**
FCH510	Environmental Chemistry I (3 cr.)	**S**
FCH515	Methods of Environmental Chemical Analysis (3 cr.)	**F**
FOR296	Environmental Geology (3 cr.)	**F,S**
FOR338	Meteorology (3 cr.)	**F**
FOR340	Watershed Hydrology (3 cr.)	**F**
FOR345	Introductory Soils (3 cr.)	**F**
FOR443	Forest Hydrology (3 cr.)	**F**
FOR540	Watershed Hydrology (3 cr.)	**F**
GOL101	Introduction Geology (3 cr.)	**F**

E. Environmental Systems Science

To further promote understanding of the systems approach to aquatic ecosystems and an integration of environmental and biological factors, students must complete at least 3 credit hours from one of the following courses.

EFB423	Marine Ecology (4 cr.)	**S**
EFB516	Ecoystems (3 cr.)	**S**
EFB542	Freshwater Wetland Ecosystems (3 cr.)	**S**

F. Management

At least 2 credit hours in resource or ecosystem management must be obtained through a course in the following list.

EFB487	Fisheries Science and Management (3 cr.)	**F**
EFB390	Wildlife Ecology and Management (4 cr.)	**S**
FOR360	Principles of Management (3 cr.)	**S**
FOR372	Fundamentals of Outdoor Rec. (3 cr.)	**F,S**
FOR542	Watershed Management (2 cr.)	**F**

G. Analytical Tools

To increase the breadth of practical skills and knowledge students must complete at least 3 credit hours, obtained through one of the following courses:

APM360	Introduction to Computer Programming (3 cr.)	**F**
EFB518	Systems Ecology (4 cr.)	**F**
EFB519	Geographic Modeling (3 cr.)	**S**
ERE445	Hydrological Modeling (3 cr.)	**F**
ESF300	Introduction to Geospatial Information Technology (3 cr.)	**F**

H. Communications

Students must complete at least 3 credit hours from one of the following communication or interpretation courses.

CLL405	Writing for Science Professionals (3 cr.)	**F,S**
CMN220	Public Presentation Skills for Environmental Professionals (3 cr.)	**F,S**
EFB416	Introduction to Environmental Interpretation (3 cr.)	**F**
EFB417	Perspectives of Interpretive Design (3 cr.)	**S**

HOW TO READ THIS PLAN SHEET

Student must match "required courses" with "earned courses" in order to satisfy curriculum requirements. Required courses are derived from the SUNY- ESF Course Catalog for the appropriate year. Earned courses may be a combination of ESF courses and transfer courses, including advanced placement credit. The requirements are split between lower and upper division, and the "summaries" display the total credit hours required, earned, and deficient in each division.

"ID" refers to the Course ID, which may be an official College course ID or an abbreviation for a transfer course or course requirement.

Transfer courses will refer to the number of a transfer college identified at the top of the plan sheet.

Courses taken at ESF will display the semester taken and the grade received.

"Semester" - term and year in
   which course was taken:
   FA - Fall term
   SP - Spring term
   SU - Summer term

"Type" of Course
   IP - course in progress
   Memo - credit added via memo
   Petn - credit added via petition

This report has been prepared to assist you in determining your academic progress at ESF. If this report does not appear to be accurate, contact your academic advisor and bring this report with you. Please be advised: final confirmation that you have met all degree requirements is subject to approval by your Faculty Chair and the Registrar.

CERTIFIED FOR

Hours: _____ GPA: _____

_____
Registrar

_____
Date

_____
Faculty Chair/ Designee

_____
Date

End of Curriculum Plan Sheet