Report of the Committee on General Education

Stony Brook University

February 1, 2013

History

In May of 2009, the University Committee on General Education was formed as a subcommittee of the Undergraduate Council. The charge of this committee was to assess and reconsider the Stony Brook General Education Curriculum (commonly known as DEC—The Diversified Education Curriculum). Membership of the committee was initially selected by the provost and the Undergraduate Council and featured a broad base of pedagogical and administrative experience. Over time the committee was expanded at the discretion of its chairs in consultation with the committee's full membership and the Undergraduate Council.

There were two sequential committees, the first primarily to discuss the underlying theory (committee 1) and the other primarily to discuss implementation (committee 2). Committee 1 issued a report on July 15, 2011, and Committee 2 issued this report in June 2012 as a revision of the first report.

This report proposes a new vision for the Stony Brook General Education Curriculum based upon the committees' four guiding principles: Clarity of Purpose, Experience beyond the Classroom, Unifying Themes and Simplicity, Flexibility and Accessibility.

Membership

Thomas K. Hemmick-chair 1 (Physics)	1	Norman Goodman (Sociology)	1
Eugene R. Hammond-chair 2 (English; Writing)	1, 2	Cheryl D. Hamilton (EOP director)	1
Antoinette Nelson (Undergraduate Student)	2	James Hoffman (Ecosystems, Southampton)	1
Diane Bello (Interim Registrar)	2	Imin Kao (Mechanical Engineering)	1
Aharon Benelyahoo (Undergraduate)	1	Maurice Kernan (Neurobiology)	2
Ritch Calvin (Cultural Analysis and Theory)	1, 2	Aysha Khan (Undergraduate)	1
Brian A. Colle (SOMAS)	1	Manuel London (Business)	1
William F. Collins III (Neurobiology)	1	April F. Masten (History)	1, 2
Donna DiDonato (Provost's office)	1	Eduardo Mendieta (Philosophy)	1
Arlene S. Feldman (Transfer office)	1	Joseph S.B. Mitchell (Applied Math)	1
Deborah Firestone (Health Technology and Management)	2	Victoriano Roncero-López (Hispanic Languages)	1
*Molly Frame (Biomedical Engineering)	1, 2	Marianna Savoca (Career Center)	1, 2
Richard Gatteau (Academic Advising)	1	Paul A. Schreiber (Journalism)	1
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Perry Goldstein (Music)	1, 2	*Nancy J. Tomes (History)	1
		*Unable to serve full term	

Acknowledgements

The committee wishes to acknowledge useful discussions with other standing bodies in the university including the Undergraduate Council, the Committee on Undergraduate Education, the Undergraduate Program Directors, the Department Chairs, the Dean's Office from the College of Arts & Sciences, and the Executive Council of the University Senate. We acknowledge contributions from Stony Brook's Teaching, Learning & Technology Center in the form of pedagogical seminars and materials.

1. The General Education Experience

A major provides the depth in a student's pool of learning. General Education provides its breadth. Unexplained or misunderstood, General Education seems a burden, another page from the do-it-because-it's-good-for-you handbook. Explained and understood, General Education becomes an opportunity to discover, to enhance, to experience, to grow. Delivered coherently and with enthusiasm, and received the same way, the perception of General Education changes from bafflement to benefit. So, too, do its outcomes.

Stony Brook's new General Education experience embodies new and exciting opportunities with fewer credits, more flexibility, and interesting options.

Guiding Principles

The first act of Stony Brook University's Committee on General Education in 2009 was to adopt a mission statement. It reads:

> Our purpose is to assess and reconsider the Stony Brook General Education curriculum to provide our students with a diverse educational foundation that will facilitate lifelong active and adaptive learning and inspire engaged global citizenship.

Our primary focus has been to try to provide our students with the best education, while celebrating Stony Brook's identity and strengths.

A pivotal event in the work of our committee was the 2009 Stony Brook retreat. During this retreat Stony Brook faculty, staff, undergraduate students, and alumni gathered at Glen Cove Mansion for two days of reflection and discussion on the value and implementation of General Education at Stony Brook. The Stony Brook students in attendance at the retreat recognized the value of General Education as clearly as the faculty and staff. However, they and the faculty held the current system in disdain. Even the best conceived General Education systems clearly degrade in quality over time. A principal reason for the students' negative attitude was the perceived disconnect between the intended purpose of a course and its in-class experience. To address this concern, we believe that a new General Education

system should establish and maintain a close connection between the intended purpose of the course and its implementation.

In reviewing and designing a new General Education curriculum, the committee chose four Guiding Principles to direct our thinking: Clarity of Purpose; Experience beyond the Classroom; Unifying Themes; and Simplicity, Flexibility and Accessibility.

Clarity of Purpose

Our first guiding principle has been to make it clear to students, faculty, and staff why students are taking their general education courses.

Clarity of Educational Objectives

Designing a General Education curriculum that maintains its clarity of purpose over the long term requires careful use of language. Simply put, it means describing each requirement not by the subject area, but by the learning outcomes to be achieved. This shift of priorities in the description of the system has multiple benefits.

Learning outcomes are not uniquely associated with the departments that provide them. The subject-driven model effectively stereotypes the education provided by our departments, thereby overlooking and forbidding unique and interesting ways for students to achieve the desired learning outcomes. In a learning-outcome-based General Education model, the judgment of experts in their own disciplines is relied upon to generate an appealing curriculum with a complete description of the opportunities available to students.

When the learning outcomes that the course should provide are contained within the title, the purpose behind taking a course becomes clearer. A move beyond subject lists also allows for natural inclusion of multi-disciplinary courses in the General Education curriculum, because each course is evaluated based upon its value to the student's education instead of simply upon the department(s) that offer it.

Clarity Concerning Certification

Maintaining clarity of purpose requires a certification process for any course that proposes to meet the learning outcomes of a category, and then recertification at regular intervals to assure that the certified courses have not diverged from their original purposes.

We envision that the steady state certification of these new measures will primarily be addressed by existing university committees. However, the initial surge of certifications will require an intense effort and likely an augmented committee.

The importance of the certification process cannot be overstated. Without alignment of the course reality with the General Education purpose, little would change in a practical sense, and we would have failed to deliver a refreshed curriculum.

Clarity Concerning Assessment

A learning-outcome-driven General Education fits extremely well into emerging models of assessment. The principal goal of assessment is to measure the effectiveness of any given course in meeting its

educational goals. Courses in the new General Education system, by virtue of the learning-outcome-defined categories, will have clear and expected measures.

We believe that each course that applies for certification in the General Education system not only must specify how it meets the learning outcomes of a category, but also how its effectiveness will be assessed. We also believe that faculty involvement in the development and use of the assessment process will lead to continuing course improvement. See chapter 4 for more information on certification.

Logically, we rely upon the expertise of our faculty in their own fields. No one can judge the quality of a history paper as well as a history professor, and no one can judge the quality of student performance on a physics exam as well as a physics professor. Therefore, we envision a simple mechanism by which faculty expertise can be brought into the assessment cycle through the Undergraduate Program Directors.

We believe that General Education courses must apply for recertification every four years and that the collected assessment material will be included as part of the recertification process.

Experience beyond the Classroom

Our second guiding principle has been to encourage students to apply their learning beyond the classroom. Anecdotal stories abound regarding the singular determination of students to "check off the boxes" of their General Education rather than to seek the life experiences that make for a complete undergraduate education. The education of a student who has experienced nothing more than lecture-midterm-paper-final during his or her undergraduate career is not as well-rounded as one that includes experience beyond the classroom. The addition of an experiential education component to the curriculum is a crucial aspect of the new curriculum.

Opportunities for experiential learning at Stony Brook include research and scholarly activity, service learning, study abroad, performance and creative activity, internship, field work, leadership, and teaching and training assistantships. We estimate, based upon course title and enrollment, that roughly 3,500 students per year are currently engaged in experiential education. Since some students seek multiple opportunities, we would like to roughly double present opportunities.

Unifying Themes

Our third guiding principle is to make it possible for students to complete part of their General Education following a themed option, a collection of courses that satisfy multiple General Education categories and have an underlying interdisciplinary connection that could culminate in a capstone course. Just as students identify themselves with their major (a conscious choice reflecting their interests and talents), we anticipate they would identify positively with a chosen theme as part of their General Education.

Simplicity, Flexibility and Accessibility

Our fourth guiding principle is to design a General Education program whose requirements are simply understood and applied broadly to all undergraduate students. A program should be flexible enough to encourage quick and timely progress towards graduation. It should also be accessible to students in all programs, thereby achieving a common experience among all academic units and providing a seamless

transfer when a student changes majors across academic colleges. And, it should facilitate success of all students, whether they begin their college studies at Stony Brook or elsewhere.

General Education Philosophy

Based on our four guiding principles, the General Education Committee concluded that the essence of a college general education should be organized into four structural components.

* Acquire and Practice Foundational Skills
* Synthesize Knowledge into Understanding
* Develop and Foster Civic Responsibility
* Apply Skills beyond the Classroom

Acquire and Practice Foundational Skills

The range of academic, intellectual, or human experience is as varied as our fingerprints, but certain skills provide the foundation upon which higher education is built. For this reason, all education begins with the acquisition of these foundational skills. A common misconception, particularly among students, is that since these foundational skills are emphasized earliest in their required curriculum, they are easily mastered. This misconception is reinforced by the architecture of the General Education system itself. Honing foundational skills is a lifelong endeavor. Highly skilled musicians play scales to their dying day and celebrated athletes repeatedly turn back to the fundamentals (particularly when they stop winning). Our architecture of the General Education reflects this reality and stresses the importance of foundational skills.

The goal of Acquire and Practice Foundational Skills is to develop an intellectual and practical foundation, including proficiency in written, oral, and visual communication; inquiry techniques; creative analysis and synthesis; quantitative applications; information management and assessment; teamwork; and problem-solving. We have designed the General Education curriculum to encourage students to acquire skills early in their college experience and then to put these skills into practice as they continue learning. In this way, the students will exercise and improve their foundational skills continually throughout their university educations and beyond.

Our General Education curriculum requires that students acquire and practice these foundational skills:
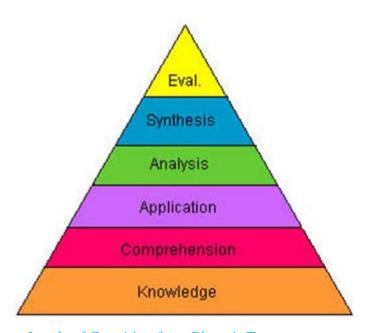* Write Effectively in English
* Communicate in a Language other than English
* Master Quantitative Problem Solving
* Speak Effectively before an Audience
* Evaluate and Synthesize Researched Information
* Write Effectively within One's Discipline

Please see Chapters 2 and 3 for detailed requirements, learning outcomes and standards in these areas.

Synthesize Knowledge into Understanding

We live in the Information Age. Each of us, equipped with network access, has the ability to retrieve so vast an array of facts and figures that the storage of these data in the form of printed text would fill one's local library to overflowing. In a recent achievement, a computer nicknamed Watson was able to defeat human opponents in the game show *Jeopardy* using the knowledge base that is the "World Wide Web." Watson's victory signals a remarkable advance in computer technology because the game poses clues riddled with puns and complex wordplay. The engineers showed that the computer can sort and access a broader information base than the human mind – and can even be taught to dissect the vagaries of human language. Despite this advance, can we consider Watson "educated" in any sense of the term?

Many descriptions of the education process refer to "Levels of Cognition." Simple knowledge, as in facts and numbers, is the lowest level of cognition. However, a successfully educated student draws inferences and conclusions based upon his or her knowledge, extrapolating to new levels of understanding. While the internet can provide all people with access to vast quantities of data, only the educated individual has the ability to synthesize knowledge into understanding. Therefore, our goal is to build 'knowledge' of human behavior and its products, the diversity of peoples and cultures, and of the natural and physical world through the study of sciences, technologies, humanities, arts, and social sciences. This progression is illustrated in Bloom's Taxonomy.

Levels of Cognition from Bloom's Taxonomy.

We have identified five areas for which the student should acquire knowledge and understanding:

* Study the Natural World
* Appreciate the Fine and Performing Arts
* Address Problems Using Critical Analysis and the Methods of the Humanities

* Understand, Observe, and Analyze Human Behavior and the Structure and Functioning of Society
* Understand Significant Links between Technology and the Arts, or between Science and Society.

Having acquired this knowledge and understanding, students in the General Education system will follow up on their interests in several of the areas they have studied at the Versatility level.

Please see Chapters 2 and 3 for detailed requirements, learning outcomes and standards in these areas.

Develop and Exercise Civic Responsibility

Education encompasses more than intellectual development. A dynamic General Education fosters individual and social responsibilities; accountability through the study of ethical principles and reasoning; application of civic knowledge; interaction with diverse cultures and global issues. Thus prepared, students will be able to exercise their civic responsibilities at the local, national, and global level.

We have identified three areas of responsibility that each student should develop and exercise.

* Practice and Respect Critical and Ethical Reasoning
* Understand the Political, Economic, Social, and Cultural History of the United States
* Engage Global Issues

Please see Chapters 2 and 3 for detailed requirements, learning outcomes and standards in these areas.

Apply Knowledge and Skills beyond the Classroom

The opportunity to apply what students have learned in a real world setting is an important experience – possibly the experience of a lifetime. Whether a career internship, a summer abroad, a chance to assist an underserved community, or any of a wide range of experiences beyond the classroom, such an exploration can be eye-opening and transformational.

Building upon foundational skills, synthesis of knowledge, and development of civic responsibility, the experiential component of General Education serves as an integrated and applied learning opportunity.

Experiential learning can take many forms, such as:
* Research and Scholarly Activity
* Service Learning
* Study Abroad
* Performance and Creative Activity
* Internship
* Field Work
* Leadership
* Teaching and Training Assistantships

Each form has a unique set of learning outcomes, but a common element is that each enables students to apply in-class learning to real-world settings. Moreover, these are the kinds of experiences that employers and graduate school admissions committees value highly.

Students must have an academic sponsor for an experiential learning credit. Students in letter-graded courses must receive a C or better. Please see Chapter 3 for more details.

2. Stony Brook Curriculum Requirements

Based on the four Guiding Principles and the General Education Philosophy as defined in Chapter 1 of this report, the Stony Brook Curriculum includes both breadth and depth of study (provided by both the General Education Requirements and the major), as well as ensuring skills necessary for life-long learning. Students must:

- *DEMONSTRATE VERSATILITY* by showing proficiency *in ten* fundamental areas of learning
- Write Effectively in English (WRT) ⊚⁼
- Master Quantitative Problem Solving (QPS) ⊚⁼
- Communicate in a Human Language Other than English (LANG). ⊚⁼ *CEAS majors are exempt from this requirement*
- Address Problems using Critical Analysis and the Methods of the Humanities (HUM) ⊚⁼
- Study the Natural World (SNW) ⊚⁼
- Understand Technology (TECH)
- Understand, Observe, and Analyze Human Behavior and the Structure and Functioning of Society (SBS) ⊚⁼
- Explore and Understand the Fine and Performing Arts (ARTS) ⊚⁼
- Understand the Political, Social, and Cultural History of the United States (USA) ⊚⁼
- Engage Global Issues (GLO) ⊚⁼

- *EXPLORE INTERCONNECTEDNESS* by completing a course that examines significant relationships between Science or Technology and the Arts, Humanities or Social Sciences (STAS).

- *PURSUE DEEPER UNDERSTANDING* by completing advanced studies *in three of four* areas of knowledge. A "+" sign in the abbreviations for these categories signifies that most courses in these categories will be relatively advanced courses at the 200-400 level. These areas are
- Science, Technology, Engineering, and Mathematics (STEM+)
- Social and Behavioral Sciences (SBS+)
- Humanities and Fine Arts (HFA+)
- Experiential Learning (EXP+)

- *PREPARE FOR LIFE-LONG LEARNING* by taking (in most cases) individual courses, which may also satisfy other Gen Ed or major requirements.
- Evaluate and Synthesize Researched Information (ESI) ⊚⁼
- Practice and Respect Critical and Ethical Reasoning (CER) ⊚⁼
- Speak Effectively before an Audience (SPK) ⊚⁼
- Write Effectively within One's Discipline (WRTD)

Students may reduce the number of credits they need to complete these requirements through courses certified in more than one area, AP courses, challenge exams, on-campus placement tests, course waivers, and faculty-designed themed course clusters. However, at a minimum, students must complete *at least 30 credits of General Education* awarded by an institution of higher education. Each of these requirements must be passed with a grade of *C or better, or of S*. In particular, a grade of P does not satisfy them.

A detailed list of the courses and activities that fulfill these requirements may be found in the university undergraduate bulletin. Many of the above requirements may be fulfilled as part of a student's major or minor. Each category marked with a SUNY logo ⊚⁼ in "Demonstrate Versatility" and "Prepare for Life-Long Learning" also serves to satisfy SUNY General Education Requirements.

3. LEARNING OUTCOMES AND STANDARDS

Each of the Versatility, Follow-up, and Life-long Learning requirements in Stony Brook's General Education program carries with it specific learning outcomes and standards.

Learning outcomes are the detailed definitions of the skills or knowledge that a student should expect to receive from a successful study of the area. The learning outcomes for each certified General Education class will be defined in the bulletin and should be on each course syllabus. These outcomes will also guide assessment of the course by the instructor and evaluation of the course by students.

Standards are specifications relevant to the course designer (e.g., the minimum length of written work necessary to qualify for writing in the discipline).

Courses taken for the major may be allowed to satisfy General Education requirements and vice versa. Some courses may be certified to fulfill requirements in more than one General Education category simultaneously.

See Chapter 2 for a condensed presentation of the Stony Brook General Education Requirements.

Demonstrate Versatility

Students must fulfill all ten of the requirements detailed below

Write Effectively in English (WRT)

Writing is the most effective way we have to find out what we think. It also requires us to think about others as we try to determine the best way to convey our ideas effectively. Through revision of our writing we learn to weigh hundreds of considerations to decide on which matter most in enabling us to communicate most effectively. Our global environment is more information-rich than ever before, but so is the possibility that we can be misled by misinformation. For that reason, and because acquiring information in any discipline only has community value when it can be communicated, we believe Stony Brook students should become proficient in written communication.

Because many of the other courses depend on the mastery of writing, we highly recommend that students complete their writing effectively in English requirement in their first year at Stony Brook.

Learning Outcomes for "Write Effectively in English"
1. Research a topic, develop an argument and organize supporting details.
2. Produce coherent texts within common college-level written forms.
3. Demonstrate the ability to revise and improve such texts.

Standards for "Write Effectively in English"
1. Certified writing courses must deliver instruction and evaluate student performance for all of the learning outcomes listed above.
2. ESL courses will not be considered for certification as writing effectively in English.
3. Typically, courses that meet advanced learning outcomes in Write Effectively in English may be certified as WRTD, not as HFA+. See the section on "Prepare for Life-Long Learning" in this chapter.

Master Quantitative Problem Solving (QPS)

Mathematics is beautiful. Despite being the product of man's purest intellectual pursuit, mathematics is, nonetheless, a very human topic as demonstrated by the beauty we perceive in a nautilus shell or the image of the Vitruvian man. We humans have taken the exact and perfect rules of mathematics as the basis for contributions to everything from science and art to economics and music.

Because many of the other courses depend on the mastery of quantitative analysis, we highly recommend that students complete their quantitative problem solving requirement in their first year at Stony Brook.

Learning Outcomes for "Master Quantitative Problem Solving"
1. Interpret and draw inferences from mathematical models such as formulas, graphs, tables, or schematics.
2. Represent mathematical information symbolically, visually, numerically, and verbally.
3. Employ quantitative methods such as algebra, geometry, calculus, or statistics to solve problems.
4. Estimate and check mathematical results for reasonableness.
5. Recognize the limits of mathematical and statistical methods.

Standards for "Master Quantitative Problem Solving"
1. A certified course shall teach a well-defined area of mathematics such as university-level geometry, statistics, or calculus. The course will address at least four of the above Outcomes.
2. MAP courses will not be considered for certification in Mastering Quantitative Problem Solving

Communicate in a Human Language Other Than English (LANG)

We wish to inspire engaged global citizenship within each of our students. Speaking and writing proficiently in English alone still leaves us with a limited understanding of the people and cultures of the rest of the world. Therefore, we expect our students to become proficient in basic writing, reading, listening, and speaking in at least one non-English language, and also that students be knowledgeable about the people and culture associated with that language. Ordinarily, the equivalent of two semesters of college-level language courses will enable students to acquire and practice these skills. We believe this proficiency is foundational, but recognize that students don't necessarily have to complete this requirement in their freshman year. Note: students in CEAS majors are exempt from this requirement.

Learning Outcomes for a "Communicate in a Human Language Other Than English"
1. Write, read, listen and speak with basic proficiency in at least one non-English language.
2. Demonstrate an understanding of the people and culture associated with that language.
3. Present coherent information and ideas in that language to listeners or readers about the people and culture of that language.

Standards for a "Communicate in a Human Language Other Than English"
1. Certified language courses shall deliver instruction in basic writing, reading, listening and speaking and assess student performance in those areas.
2. A certified practice course shall require students to employ basic skills in gathering and presenting information in that language about the people and perspectives of that culture.
3. Assessment of student achievement will place no less than 30% of the credit on the quality of reading and writing.
4. Assessment of student achievement will place no less than 50% of the credit on the quality of the student's listening and speaking ability.
5. Computer languages do not satisfy this requirement.

Address Problems Using Critical Analysis and the Methods of the Humanities (HCA)

The discipline of humanities has traditionally included the fields of the Arts, History, Literature, Philosophy, and Religious Studies. Today the academic disciplines in the humanities have been broadened to include Africana Studies, Asian and Asian-American Studies, Cinema and Cultural Studies, Linguistics, and Women's and Gender Studies. Through analytical, critical, or speculative means, the humanities study the history of the human condition and of human thought and values and consider the ways in which those ideas have shaped, and will shape, our communities. Through this examination, humanities courses broaden our understanding and foster an appreciation of the cultures of the world in which we live. As the world becomes ever more interconnected, and as cultures become ever more in contact, the study of the humanities offers an opportunity to train the broadminded and informed global citizen.

Learning Outcomes for "Address Problems Using Critical Analysis and the Methods of the Humanities"
1. Understand the major principles and concepts that form the basis of knowledge in the humanities.
2. Understand the theoretical concepts that undergird one or more of the humanities.
3. Develop an awareness of some of the key historical themes of one or more of the humanities.
4. Develop an awareness of the multi- or interdisciplinary nature of issues within the humanities.
5. Develop an awareness of the contexts (historical, social, geographical, moral) in which these issues emerged.
6. Develop the verbal and written skills to articulate valid arguments on these issues.

Standards for "Address Problems Using Critical Analysis and the Methods of the Humanities"
1. Certified courses shall fulfill at least four of the learning outcomes.

Study the Natural World (SNW)

Among the landmark discoveries of humankind are the invention of the wheel and the discovery of fire. While each of these was transformative, it can be argued that both pale in comparison with the development of the scientific method. Our five senses deliver information that each of us builds into a system of beliefs known as "common sense." This sense is "common" because all humans who suffer the same limitations of their senses reach similar conclusions about how the natural world works. Extrapolation of these expectations beyond the reach of our senses – to the very small at the atomic scale and the very fast at light speed – is false. The rigor of the scientific method has allowed and even forced humanity to break ties with common sense by recognizing that truth does not succumb to the beliefs of the majority. The reward for embracing reason over prejudice has been the discovery of those bizarre and beautiful truths of the natural world that provide the basis for all modern technology. Knowledge of these discoveries and an understanding of the research processes that led to them are essential components of higher education.

Learning Outcomes for "Study the Natural World"

1. Understand the natural world and the major principles and concepts that form the basis of knowledge in the natural sciences.
2. Understand the methods scientists use to explore natural phenomena including observation, hypothesis development, measurement and data collection, experimentation, and evaluation of evidence.
3. Assess scientific information and understand the application of scientific data, concepts, and models in the natural sciences.
4. Make informed decisions on contemporary issues involving scientific information.

Standards for "Study the Natural World"
1. Certified natural science courses shall fulfill outcome 2 (understand the methods scientists use to explore natural phenomena including observation, hypothesis development, measurement and data collection, experimentation, evaluation of evidence) and at least two of the remaining three outcomes and have a broad content in a specific area of the Natural World.

Understand Technology (TECH)

Arthur C. Clarke wrote that "any sufficiently advanced technology is indistinguishable from magic." Educated people must seek to understand how this "magic" works.   The advent of nuclear energy, for example, offered a clean alternative to old methodologies, but with shortcomings that have become apparent. The internet offered instant access to mountains of information, but without distinguishing the incendiary and inaccurate.   We buy increasingly complex cars, houses, and electronic devices in the 21st century, and we are naively asking others to exploit us if we don't learn as much about technology and the built environment we live in as we can.   Even a single course in one technology can teach us how to go about understanding others and give us the confidence to do so.

Learning Outcomes for "Understand Technology"
1. Demonstrate an ability to apply technical tools and knowledge to practical systems and problem solving.
2. Design, understand, build, or analyze selected aspects of the human-made world.

Standards for "Understand Technology"
1. Courses must satisfy both learning objectives.

Understand, Observe, and Analyze Human Behavior and Societal Constructs (HBS)

Humans are social creatures. Examining a list of human behaviors and experiences including forms of communication and expression reveals the important meaning that takes place in the context of human interaction, either between individuals or among small and large groups. Our need for social connection and community, or shared experiences, often leads to the construction of societies and to a social interdependence that is both essential and inevitable. Further, the social sciences find ways to understand the important relationships among all humans that can range from the very intimate to the larger political and economic connections we have to one another and to the larger groups to which we belong. The study of these kinds of behaviors—in such fields as anthropology, economics, history, linguistics, political science, sociology and psychology, among others—invariably includes the necessary ways that groups assign values to its members, to their behaviors, and to the symbolic outcomes of these interactions. Finally, it is the ever-changing nature of the social world that makes its study at once uniquely complex and utterly fascinating.

Learning Outcomes for "Understand, Observe, and Analyze Human Behavior and Societal Constructs"
1. Understand the major concepts and phenomena that form the basis of knowledge in the social sciences.
2. Understand methods of inquiry into the social world and the methods social and behavioral scientists use to explore social phenomena including observation, hypothesis development, measurement and data collection, experimentation, and the evaluation and application of evidence.
3. Understand various types of theory (e.g., behavioral, political, economic, linguistic) that organize predictions and evidence in the social sciences.
4. Skillfully interpret and form educated opinions on social science issues.

Standards for "Understand, Observe, and Analyze Human Behavior and Societal Constructs"
1. Certified Versatility social science courses shall fulfill any two of the above outcomes and have a broad content in a specific area of social sciences.

Explore and Understand the Fine and Performing Arts (ARTS)

The fine and performing arts rely on both cognitive and intuitive thinking, a balance of knowledge and creativity, technical skills and insight, all employed in an effort to express that which cannot be conveyed through words alone. The fine and performing arts entertain, move, and stimulate, and to comprehend their power and complexity one must understand the particular skills and materials employed, as well as the cultural, historical, and intellectual context of that employment. Consideration of the arts also enables us to explore the nature of creativity. Experiencing, studying, and practicing the arts sensitize us to the ideas, emotions and values of different individuals, peoples, and times. Art is thus a powerful vehicle through which societies examine, challenge, express, and shape themselves.

Learning Outcomes for "Explore and Understand the Fine and Performing Arts "

1. Develop an understanding of works of art and their practitioners through an examination of the works in the historical and cultural context in which the art was or is created.
2. Understand the materials, forms, and/or styles of art through study of arts theories and the works themselves.
3. Understand ideas, materials, technical skills, and forms of art in order to express oneself creatively through an artistic medium.
4. Develop tools of aesthetic discourse through contact with works of art – as well as through writings on art – related to its critical understanding, cultural placement, and appreciation.

Standards for "Explore and Understand the Fine and Performing Arts "

1. Certified courses in the arts shall fulfill at least one of the four learning outcomes. Certified courses will devote significant time to the consideration of art and its principles, through historical, theoretical, technical and/or critical writings about art, through the examination of works of art, through the creation of art, or combinations thereof.

By way of example, this could include: art history, studio art, dramatic arts, design, dance, film, music, theatre, or interdisciplinary arts.

Understand the Political, Economic, Social, and Cultural History of the United States (USA)

There is a parable about a man who tried to change the world and failed, then tried to change his local community and failed, then decided to change himself. After changing himself, he inspired his neighbors, they inspired their communities, those communities inspired the states, and so on until the world did change. The bumper-sticker version of this wisdom is "Think Globally, Act Locally." Developing and exercising such civic responsibility requires knowing about the political and economic structure of the United States and the diverse social and cultural groups that have contributed to the making of that structure.

Learning Outcomes for "Understand the Political, Economic, Social, and Cultural History of the United States"
1. Demonstrate knowledge and understanding of the rights and responsibilities of citizenship, and the workings of federal, state, and municipal governments in the United States.
2. Demonstrate knowledge and understanding of U.S. history and society.
3. Demonstrate knowledge of a subculture or relationships among subcultures within U.S. society.

Standards for "Understand the Political, Economic, Social, and Cultural History of the United States"
1. A certified course shall demonstrate a serious, disciplined engagement with political, economic, social, and/or cultural aspects of U.S. society, past or present. Such courses should address at least two of the learning outcomes

Engage Global Issues (GLO)

The world is interconnected. A flood in one country ripples around the world. Political upheavals cross borders. Trade is global. Financial traumas reverberate across the globe. And communications connect us all. The ability and responsibility to understand complex issues requires students to study different parts of the world and engage global issues.

Learning Outcomes for "Engage Global Issues"
1. Demonstrate knowledge and understanding of the interconnectedness of the world, past and present.
2. Demonstrate knowledge and understanding of a society or culture outside of the United States.

Standards for "Engage Global Issues"
1. A certified course shall demonstrate a sustained, disciplined engagement with a society or culture beyond the United States and/or an issue(s) that links world societies together. For such courses, a significant portion must address the diversity and interconnectedness of the world's societies and cultures.

Explore Interconnectedness

Students must complete a course that examines significant relationships between broad areas of knowledge.

Understand Relationships Between Science or Technology and the Arts, Humanities or Social Sciences (STAS).

C.P. Snow wrote in 1959 about the *Two Cultures*, scientists and non-scientists, that were becoming increasingly distrusted by each other in the mid-20th century, and that the breakdown of communication between them was a major hindrance to solving the world's problems. Now in the 21st century, the misunderstandings that can result when either of these two cultures dismisses the "other" are even more dangerous to society. Non-scientists need to be able to read about issues related to nuclear energy or global warning or species extinction or internet security and to know enough to make well-informed decisions about such issues. Scientists need to recognize that their work has societal implications, positive and negative, that must be part of a scientist's complete education. Computer technology, for example, has "democratized" the arts; new, easier and widely available tools have led to an explosion of artistic expression, but have also raised new questions about how one critically evaluates the creative use of technology.

Learning Outcomes for "Understand relationships between Science or Technology and the Arts, Humanities or Social Sciences (STAS)"
1. Apply concepts and tools drawn from any field of study in order to understand the links between science or technology and the arts, humanities or social sciences.
2. Synthesize quantitative and/or technical information and qualitative information to make informed judgments about the reciprocal relationship between science or technology and the arts, humanities or social sciences.

Standards for "Understand Relationships between Science or Technology and the Arts, Humanities or Social Sciences (STAS)"
1. A certified course shall fulfill both learning outcomes. Certified courses will devote significant time to the consideration of science or technology and the social, economic, ethical, moral, political, artistic, and/or other consequences.

Pursue Deeper Understanding

Students must complete advanced studies **in three of four** *distinct areas. These areas are*
- *Science, Technology, Engineering, and Mathematics (STEM+)*
- *Social and Behavioral Sciences (SBS+)*
- *Humanities and Fine Arts (HFA+)*
- *Experiential Learning (EXP+)*

Students will typically complete this requirement by taking individual courses at the 200-400 level which have been certified as satisfying one of the above areas. As with other requirements, such certified courses may also be applied to the student's major or minor, or they may be part of a specially designed themed cluster or dual-certified course.

In all cases, courses certified as fulfilling the Pursue Deeper Understanding requirement will build upon skills and knowledge acquired in the Versatility courses, having students study or practice these in greater depth.

- Courses meeting the STEM+ requirement will typically have prerequisites from the Master Quantitative Problem Solving (QPS), Study the Natural World (SNW), or Understand Technology (TECH) areas. Such courses will require students to cover material in the STEM area at deeper level than the introductory Versatility courses.
- Courses meeting the HFA+ requirement will usually have prerequisites from Address Problems using Critical Analysis and Methods of the Humanities (HCA), Explore and Understand the Fine and Performing Arts (ARTS), or Communicate in a Language other than English (LANG). Such courses will require students to cover material in the humanities or fine arts at a deeper level than the introductory Versatility courses. Students may satisfy the HFA+ requirement by completing an introductory course in a language other than English and not previously used to satisfy the LANG Versatility requirement.
- Courses meeting the SBS+ requirement will typically have prerequisites drawn from the areas of Understand, Observe, and Analyze Human Behavior and the Structure and Functioning of Society (HBS), Understand the Political, Social, and Cultural History of the United States (USA), or Engage Global Issues (GLO). Such courses will require students to cover material in social and behavioral sciences at a deeper level than the introductory Versatility courses.
- Courses meeting the EXP+ requirement will have prerequisites drawn from any area, and will engage students in a "beyond the classroom" experience. This option is discussed in more detail below.

Learning Outcomes for "Pursue Advanced Knowledge"
1. Students must use the skills expected from their Versatility courses to study and practice them in greater depth, with further study applied to the area in which they are certified.

Standards for "Pursue Advanced Knowledge"
1. Certified courses must expect students to practice the skills they learned in their Versatility courses in greater depth. These courses must have prerequisites from among the Versatility categories and will typically be at the 200-400 level.

Apply Knowledge and Skills beyond the Classroom (Experiential Learning, EXP+)

We highly recommend that students fulfill one or more of these four follow-up requirements with an approved experiential learning course or a beyond-the-classroom experience, such as service learning, undergraduate research, or an internship.

Experiential learning can take many forms such as:
- Research and Scholarly Activity
- Service Learning
- Study Abroad
- Performance and Creative Activity
- Internship
- Field Work
- Leadership
- Teaching and Training Assistantships
- Cooperative Education

Individual learning objectives and standards for the above will be developed as needed by a special Experiential Learning committee.

Standards Applicable to all Experiential Learning Activities

The Stony Brook experiential learning requirement will use national standards for experiential learning developed by the National Society for Experiential Education (NSEE).

1. *Intention*: All students and advisors must be clear why the student chose the particular experience to meet this General Education requirement. This includes a clear statement about the learning that is to take place and the knowledge that will result from it. Intention represents the purposefulness that enables experience to become knowledge and, as such, is deeper than the goals, objectives, and activities that define the experience.

2. *Preparedness and Planning*: Students must ensure that they enter the experience with sufficient foundation to support a successful experience. They must also focus from the earliest stages of the experience/program on the identified intentions, adhering to them as goals, objectives and activities are defined. The resulting plan should include those intentions and be referred to on a regular basis by all parties. At the same time, it should be flexible enough to allow for adaptations as the experience unfolds.

3. *Authenticity*: The experience must have a real world context and/or be useful and meaningful in reference to an applied setting or situation. This means that it should be designed in concert with those who will be affected by or use it, or in response to a real situation.

4. *Reflection*: Reflection is the element that transforms simple experience to a learning experience. For knowledge to be discovered and internalized the learner must test assumptions and hypotheses about the outcomes of decisions and actions taken, then weigh the outcomes against past learning and future implications. This reflective process is integral to all phases of experiential learning, from identifying intention and choosing the experience, to considering preconceptions and observing how they change as

the experience unfolds. Reflection is also an essential tool for adjusting the experience and measuring outcomes.

5. *Orientation and Training*: For the full value of the experience to be accessible to both the learner and the learning facilitator(s), and to any involved organizational partners, it is essential that they be prepared with important background information about each other and about the context and environment in which the experience will operate. Once that baseline of knowledge is addressed, ongoing structured development opportunities should also be included to expand the learner's appreciation of the context and skill requirements of her/his work.

6. *Monitoring and Continuous Improvement*: Any learning activity will be dynamic and changing, and the parties involved all bear responsibility for ensuring that the experience, as it is in process, continues to provide the richest learning possible, while affirming the learner. It is important to have a feedback loop related to learning intentions and quality objectives and that the structure of the experience be sufficiently flexible to permit change in response to what that feedback suggests. While reflection provides input for new hypotheses and knowledge based in documented experience, other strategies for observing progress against intentions and objectives should also be in place. Monitoring and continuous improvement represent the formative evaluation tools.

7. *Assessment and Evaluation*: Outcomes and processes should be systematically documented with regard to initial intentions and quality outcomes. Assessment is a means to develop and refine the specific learning goals and quality objectives identified during the planning stages of the experience, while evaluation provides comprehensive data about the experiential process as a whole and whether it has met the intentions that suggested it.

8. *Acknowledgment*: Recognition of learning and impact occur throughout the experience by way of the reflective and monitoring processes and through reporting, documentation, and sharing of accomplishments. All parties to the experience should be included in the recognition of progress and accomplishment. Culminating documentation and celebration of learning and impact help provide closure and sustainability to the experience.

Prepare for Life-long Learning:

Students must fulfill the four requirements detailed below to prepare for the world beyond graduation.

Evaluate and Synthesize Researched Information (ESI)

The Information Age is characterized by the ease with which information and misinformation are created and collected. Information management has become a foundational skill that must be acquired and practice is strongly encouraged. Students, as good citizens, need to arm themselves with the technical literacy necessary to gather information and the ability to manage and analyze that information in order to make sound judgments and take action.

Learning Outcomes for "Evaluate and Synthesize Researched Information"

1. Locate information from a variety of sources, starting with texts and books.
2. Utilize technological tools to locate, organize, and analyze information.
3. Analyze the accuracy of information and the credibility of sources.
4. Determine the relevance of information.
5. Use information ethically and responsibly.

Standards for "Evaluate and Synthesize Researched Information"

1. A certified course may be from any department and shall teach research skills and require students to employ methods to seek, manage and analyze information.

Practice and Respect Critical and Ethical Reasoning (CER)

The dividing line between an ordered society that serves all citizens and an amoral/unjust society is in the determination and application of a set of moral principles or values. Therefore, students should acquire competency in distinguishing among the major ethical traditions that have shaped civil society. Students should demonstrate a capacity to address contemporary ethical challenges and debates in a variety of ethical traditions. Students should be able to assess the differences among ethical, legal, societal and political issues. Possible courses include philosophy, business ethics, medical ethics, political principles, religious ethics, engineering ethics, or professional ethics.

Learning Outcomes for "Practice and Respect Critical and Ethical Reasoning"

1. Demonstrate an ability to distinguish among the ethical principles guiding human behavior.
2. Apply ethical reasoning to a variety of situations and human experience.
3. Understand and differentiate ethical, legal, social justice, and political issues.

Standards for "Practice and Respect Critical and Ethical Reasoning"

1. A certified course shall convey knowledge of key ethical traditions guiding moral behavior.
2. A certified course shall compare and contrast multiple cultural ethical traditions.
3. A certified course shall demonstrate how moral and ethical issues relate to questions of legality and politics.

Speak Effectively before an Audience (SPK)

A person's effectiveness in any profession is either enhanced by or limited by his or her communication skills. In the 21st century, professionals use a variety of media to convey information or to persuade an audience. Students, therefore, should be prepared when they graduate to give a report on any subject that they have researched or been assigned.

Learning Outcomes for "Speak Effectively before an Audience"
1. Research a topic, develop an oral argument and organize supporting details.
2. Deliver a proficient and substantial oral presentation using appropriate media.
3. Evaluate oral presentations of others according to established criteria.

Standards for "Speak Effectively before an Audience"
1. Courses certified as providing oral communication practice must provide access to instruction in the methods of making a proficient oral presentation. Access might include referral to on-campus resources.
2. Certified oral communication courses shall require students to make a substantial and graded oral presentation (e.g., 10-15 minutes) before a group.
3. Certified oral communication classes shall have students evaluate other students' oral presentations using explicit criteria.

Write Effectively within One's Discipline (WRTD)

Every profession in the twenty-first century requires clear, thoughtful, organized, and correct writing. We don't know any subject well until we can write clearly about it. Therefore, we expect all Stony Brook graduates to be able to write effectively in their chosen fields.

Learning Outcomes for "Write Effectively within One's Discipline
1. Collect the most pertinent research, draw appropriate disciplinary inferences, organize effectively for one's intended audience, and write grammatically appropriate English.

Standards for "Write Effectively within One's Discipline"
1. Produce written work congruent with the standards of one's discipline
2. Complete one certified course that reinforces writing skills in the major discipline OR submit a portfolio of at least 15 pages of written work in the discipline, as determined by the department and certification committee.

4. CERTIFICATION

The General Education Committee anticipates the formation of an Implementation Group through a process of shared governance that will initiate the next phase of the General Education experience. A major component of this group shall be a certification committee, charged with the task of certifying courses as meeting the defined outcomes. In addition, the implementation group will address technical issues related to implementation, such as a timeline and standard operating procedure for implementation, a strategy for dealing with transfer credit for students entering or leaving the university, re-programming of the degree audit system, development of student advisement tools, drafting of revisions of the undergraduate bulletin, coordination of the Experiential Education requirement, development of a grandfathering system during the transition period, and delivery of information to students and faculty explained in simple and direct terms.

Our plan for General Education assessment is consistent with the model supported by the Middle States Commission on Higher Education, whose "Characteristics of Excellence in Higher Education" guidelines state:

> Assessment of student learning may be characterized as the third element of a four-step teaching-learning-assessment cycle:
> 1. Developing clearly articulated written statements, expressed in observable terms, of key learning outcomes: the knowledge, skills, and competencies that students are expected to exhibit upon successful completion of a course, academic program, co-curricular program, general education requirement, or other specific set of experiences . . .;
> 2. Designing courses, programs, and experiences that provide intentional opportunities for students to achieve those learning outcomes . . .;
> 3. Assessing student achievement of those key learning outcomes; and
> 4. Using the results of those assessments to improve teaching and learning.

This chapter deals primarily with certification and recertification of General Education courses. Recertification is an integral part of the new General Education experience meant to ensure that courses remain fresh, effective, and in compliance with their learning outcomes.

Certification Committee

A faculty committee must certify each course – whether a new course or an existing course – as meeting its intended outcomes in the new system.
To enable a streamlined implementation, the certification process will utilize the existing structure of shared governance and standing committees. Doing so will:

* build on the experience of the existing committee that is currently charged with General Education certification;
* enable implementation to occur rapidly and with a relatively low increase in overall faculty workload;
* achieve the earliest possible availability of the new program to students.

Membership of the Certification Committee

To balance the benefits of using the existing committee structure, appropriate actions should be taken to ensure that the certification committee has appropriate representation and that it is not overwhelmed by sheer volume during the implementation process. The certification committee, upon consultation with stakeholders, could elect to temporarily expand its membership through a special election.

Charge to the Certification Committee

The initial and immediate charge of the committee shall be to formulate its membership through a process of shared governance. The Certification Committee shall have appropriate representation from the academic disciplines that offer undergraduate programs.

Also, the committee shall quickly develop a linear proposal process that utilizes the existing governance and academic hierarchy. The committee will develop proposal forms and clearly communicate the proposal process and guidelines to faculty and staff.

The hope for progress and improvement in our General Education lies with the re-examination of every General Education course, with the alignment of the course's objectives to the desired learning outcomes, and with the continual assessment and maintenance of the course. Success lies in the shared responsibility of the Certification Committee, the Undergraduate Council, and the university faculty and its leaders, including the undergraduate program directors, the department chairs, the college deans, and the vice provost for undergraduate education. Success also relies upon clear communication of the required steps. As such, the Certification Committee is charged to:

- Review requests for certification and recertification, determining which requested courses will receive that designation, and communicating its decisions to the proposing units. In cases where certification is not granted, this committee will clearly communicate the reasons for this decision.
- Work with the Administration to see that certified courses are communicated to the University community through the Undergraduate Bulletin, Stony Brook University website, and other appropriate venues.
- Make formal recommendations to the Academic Colleges and Schools regarding substantive changes to General Education Program as needed.
- Remove certification when requested by the hosting department(s) or when there is evidence the department offering the course is not meeting the terms of the Certification Request.

- Coordinate, support, and review the regular assessment of the program by the University-wide assessment committee.

Experience has shown that these charges can be well met using a series of short documents and forms that succinctly and clearly define all requirements.

Requests for Course Certification

Requests for certification must be initiated by the department or unit that offers the course by whatever process is required in each department's bylaws. Proposals should be endorsed by the department chair or program head. In cases where the course is cross-listed, or in the case of proposals for multiple certification, memos of support from cross-listed units(s) or interdisciplinary themed options must accompany the certification request. (Multiple certification and interdisciplinary themed options are discussed in the "Multiple Certification" section of this chapter.)

A Course Certification Request Form shall accompany all requests for certification. This form asks for at least the following:
- the course number, name, and current description from the Undergraduate Bulletin;
- the learning outcome(s) that would be satisfied by the course;
- the outcome(s) or skill(s) that would be reinforced by the course.
- a copy of the syllabus that clearly identifies:
    - the learning outcome(s) that would be satisfied by the course;
    - a brief description of the opportunities this course would provide for students to acquire the knowledge or skills necessary to achieve the learning outcome(s);
    - a brief description of the graded assignments that the instructor(s) will use to evaluate the students' achievement of the outcome(s).
- a plan for meeting the minimum contact-credit relationship as required by SUNY and SED;
- a signature of pre-approval by the respective curriculum committee, where applicable;
- a budgetary commitment or statement indicating that the department and college can and will commit resources to offer said course, program or theme;
- a signature from the unit chair or head endorsing the proposal and affirming that the unit will:
    - see that the syllabus for each certified course clearly indicates the outcome(s) for which the course is certified, the opportunities the course will give students to acquire the knowledge or skills necessary to achieve the learning outcome(s), and the graded assignments which the instructor(s) will use to assess the students' achievement of the outcome(s);
    - collect and assess in coordination with the assessment cycle a reasonable sample of students' products and provide reflections on students' achievement of the learning outcomes for its respective certified courses;
    - provide the results of these assessments, to the relevant committee(s).
- other information deemed appropriate to generate concise yet complete proposals.

In its review of requests for certification, the committee will use such criteria as:
- Does the course clearly address the learning outcome(s) identified?
- Does the course provide students with opportunities to develop the knowledge/skills necessary for successful achievement of the learning outcome(s)?

• Does the course provide students with opportunities to demonstrate achievement of the learning outcome(s)?

• Have the hosting department or unit and the instructor(s) agreed to follow through with their responsibilities as outlined in the Course Certification Request Form?

Types of Certification

Successful applications for certification will award either single, double, or multiple certification. Certified courses in the Versatility categories will typically be introductory and at the 100-200 level. Certified courses in the Follow-up categories must have prerequisites from among the Versatility categories; these courses will typically be at the 200-400 level. Certified courses in the Life-long Learning category could be at any level, as appropriate for the learning outcomes of each category.

While certified courses will typically be 3- or 4-credit courses, in some cases it may be appropriate that they be 0-credit courses. If fulfillment of the learning objective is not an intrinsic part of the course work, or is an optional component of the course, a separate 0-credit course might be attached to the main course. For example, a 120-student course in biology might be structured so that there is an opportunity for 12 students to make an oral presentation; these students could register for a 0-credit section of the course that satisfies the Speak Effectively before an Audience requirement. We anticipate that 0-credit courses will typically be restricted to the WRTD and SPK requirements, but might also be useful in other situations.

Single Certification
Most courses in the system will be certified as a single certification. This means that the course has been certified as meeting a specific skill or knowledge area (e.g., Appreciate the Fine and Performing Arts)..
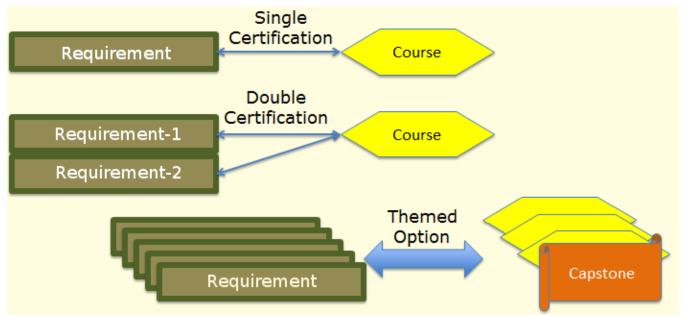
Double Certification
Some courses might be designed in such a manner that they fulfill the learning outcomes of two areas. These courses can apply for double certification; students who pass this course will fulfill requirements in two categories. A single course will satisfy no more than two categories (i.e., there is no triple certification).

Multiple Certification and Themed Course Clusters
Multiple certification is a new concept in Stony Brook's General Education, designed to allow for the straightforward implementation of a themed option within General Education. Rather than applying for either single or double certification of a single course, a collection of related (themed) courses are submitted for certification as fulfilling a collection of requirements.

Among the most appealing, yet most difficult-to-implement options for General Education, is the themed option. A themed option can ignite the imagination of students and provide a sense of ownership of their choice. Themed options further provide the faculty with the intellectual freedom to develop cross-disciplinary courses of study with a ready base of students seeking this opportunity as a standard part of their General Education experience.

The relation between themed options and certification.

As indicated in the diagram above, a themed option can be defined by a set of courses that map onto a set of learning outcomes spanning an equivalent or nearly equivalent number of skill areas. The certification process shall consider the collection of learning outcomes provided by the course list against the collection of learning outcomes from the skill areas it is proposed to address. Furthermore, any themed option must culminate with a capstone experience, specifically designed to synthesize the learning into a cross-disciplinary topic.

Some themed clusters may have limited availability, specialized prerequisites or admission requirements.

Faculty who design a themed option must work with the department chairs and college deans to ensure course and program availability. Proposals for certification of Themed Options Implemented as Multiple Certifications must include written endorsement from the sponsoring departments and relevant deans committing resources to support students throughout completion of the theme.

Recertification

The initial set of certified courses will be divided into four groups, with different groups coming up for recertification after three, four, five and six years. Subsequently, four years after a course has been certified or recertified, the certification committee will submit a Recertification Request Form [4] to the hosting department or unit that will ask if it wishes to seek recertification for the course and to identify:

- What assessment data have revealed about how the course helps students achieve the designated learning outcome(s);
- How those data have been used to modify the course;
- Any other changes in the course since certification were obtained.

In its review of requests for recertification, the committee will use such criteria as:

- Does the course clearly address the learning outcome(s) identified?

• Does the course provide students with opportunities to develop the skills or areas of knowledge necessary for successful achievement of the learning outcome(s)?

• Does the course provide students with opportunities to demonstrate achievement of the learning outcome(s)?

• Has the hosting department or unit used assessment data to improve the course?

• Have the hosting department or unit and the instructor(s) followed through with their responsibilities as outlined in the Course Certification Request Form?

5. Advantages and Opportunities

The proposed General Education experience offers a variety of advantages and opportunities for Stony Brook students, faculty, and administrators:

- Clearer learning expectations
- Fewer required credits
- More opportunities for in-depth studies
- More flexibility within the overall undergraduate curriculum structure
- More choices within the general education menu
- No need to take introductory courses in areas students are already well prepared in
- Better preparation for the world beyond the university
- More easily traceable path to graduation
- Systematized and coordinated aspects of general education that were previously "infused" or not visibly accessible to all students. E.g., experiential education, study abroad, critical reasoning, speaking in public, etc
- Improved understanding of the General Education experience while advancing its rigor.
- A single General Education experience for all schools and colleges in the university

In addition, this General Education experience maintains the university's compliance with SUNY expectations and with current Middle States' assessment standards.

Opportunities and Advantages for Stony Brook Students
The vast majority of students will complete the General Education experience more efficiently. They will have more flexibility in choosing courses and potentially will require fewer courses to complete requirements.

Defining courses by learning outcomes rather than disciplines will increase the variety of ways students can complete the requirements and make clear the importance of each course to the student's education.

In the new General Education program, students can choose a themed option or areas to study in greater depth that will allow them to pursue their special interests. This offers students the same sense of choice and personal identification that they experience through their choice of major.

For many students their undergraduate experience will culminate in coursework beyond the classroom. The General Education program makes these life-altering opportunities more accessible and visible to students.

Opportunities will exist for students to use appropriately approved courses to satisfy multiple graduation requirements.

Opportunities and Advantages for Stony Brook Faculty

The new learning-outcomes model offers faculty the opportunity to think through existing courses to clarify their most important goals. A clearer understanding of what is expected of students in each course and how each course relates to other parts of their General Education experience will result in students who are more committed and engaged. The learning outcomes model also encourages faculty to work with faculty in other fields to develop new courses that are relevant and exciting.

The required inclusion of learning objectives on all syllabi clarifies the teaching expectation of courses from the perspective of the faculty, some of whom might be teaching a long-standing course for the first time

The model facilitates teaching advanced general education courses at the appropriate level by broadly enforcing and clarifying prerequisites.

It increases the attractiveness of minors and flexibility for faculty to design interdisciplinary minors.

Double-certified courses more accurately acknowledge the educational value of interdisciplinary courses and provide added flexibility for faculty to align teaching with research.

Opportunities and Advantages for Stony Brook Administrators

The proposed General Education program goes a long way to answering a central question in the university's Strategic Plan: "What is special about a Stony Brook student?"

The proposed General Education program can be uniformly implemented at all undergraduate schools and colleges within the university

While Stony Brook is noted for the excellence of its major programs, its Diversified Education Curriculum has fallen short in a number of ways, including its scattered and piecemeal approach, its lack of interconnection, and its emphasis on covering disciplines rather than learning outcomes.

The proposed General Education program offers an integrated approach with an emphasis not only on acquiring skills and knowledge in a particular course but also on applying skills and knowledge throughout students' academic careers.

The new General Education program will result in students and faculty who are more committed and engaged. Faculty will be more likely to work with other faculty to jointly develop interdisciplinary courses and options.

Because Middle States now requires universities to implement a well-defined system of assessment, this new General Education program will ensure Stony Brook's compliance with Middle States' standards as needed by the upcoming review.

Comparison of Required Credits

The current DEC program requires 15 categories plus four skills plus an upper division writing requirement for a total of 20 requirements for most students (60 credits). For the new General Education program, a first-year student entering Stony Brook having fulfilled none of the required General Education skills or areas of knowledge would be required to take 18 courses (54 credits). We anticipate that most students will typically complete the General Education requirements with 36-40 credits, because of double certification and overlap between major and other requirements.

Through AP courses, Challenge Exams, on campus placement tests, course waivers, courses that fulfill two requirements, and faculty-designed themed course clusters, students may reduce the number of credits they need to complete these requirements. At a minimum, students must complete **at least 30 credits of General Education** awarded by an institution of higher education.

Summary

The new system promises improved relevance, rigor, and renewal of courses and the opportunity for students to accomplish the General Education experience with fewer courses.

6. SUNY GENERAL EDUCATION AND STUDENT MOBILITY

As part of the SUNY system, Stony Brook University does not have complete freedom in the definition of its General Education curriculum. The 1998 resolution of the Board of Trustees defines minimum standards to which each institution must adhere in its local implementation of General Education, including ten subject areas and two competencies. These are:

Areas:
1. Basic written communication and oral communication
2. Mathematics
3. Foreign Language
4. Humanities
5. Natural Sciences
6. Social Sciences
7. American History
8. Western Civilization
9. Other World Civilizations
10. The Arts

Competencies:
1. Critical Thinking
2. Information Management

The original resolution required students to complete courses in all 10 categories and two competencies. A 2010 revision allows for a student to study 5 of 8 subjects from categories 3-10 and two competencies, as long as the student completes a minimum total of 30 credits in General Education courses.

Stony Brook's current DEC system fulfills the SUNY minimum. The new General Education also fulfills the 2010 minimum requirement, and will remain congruent with the SUNY categories.

Furthermore, student mobility is a state-mandated principle ensuring that a student who earns credit in any of the ten state-listed subject categories from any SUNY institution may transfer these credits to any other institution. Although this might seem to require that we drop our outcome-based standards and define instead a subject-based General Education system, we believe we have a simple solution.

In order to comply with the state mobility requirements, each state-defined category would have a one-to-one correspondence to a skill or area of knowledge within our model. Although a few of these matches will necessarily be somewhat awkward, the simplification provided by this matrix is, nonetheless, necessary to accommodate all students. This correspondence is shown in the table below.

Beyond the SUNY General Education Requirements, the new Stony Brook General Education program requires up to four advanced courses in the above categories and/or an advanced academic experience outside the classroom. In addition, Stony Brook requires students to demonstrate advanced writing proficiency in one's discipline as well as an interest in and understanding of implications between the sciences and the arts, or between science and society.

Following the table below will ensure that students who transfer into or out of Stony Brook will not be placed at a significant disadvantage in completing their degree in a timely manner.

SUNY Category	Stony Brook General Education program
Basic written & oral communication	Write Effectively in English (WRT); Speak Effectively before an Audience (SPK)
Mathematics	Master Quantitative Problem Solving (QPS)
Foreign Language	Communicate in a Human Language Other than English (LANG)
Humanities	Address Problems using Critical Analysis and the Methods of the Humanities (HCA)
Natural Science	Study the Natural World (SNW)
Social Science	Understand, Observe, and Analyze Human Behavior and the Structure and Functioning of Society (HBS)
American History	Understand the Political, Social, and Cultural History of the United States of America (USA)
Western Civilizations	Engage Global Issues (GLO)
Other World Civilizations	*(Engage Global Issues (GLO))*
The Arts	Explore and Understand the Fine and Performing Arts (ARTS)
Critical Thinking	Practice and Respect Critical and Ethical Reasoning (CER)
Information Management	Evaluate and Synthesize Researched Information (ESI)
(No SUNY equivalent)	Understand Technology (TECH)
(No SUNY equivalent)	Write Effectively within One's Discipline (WRTD)
(No SUNY equivalent)	Understand Relationships between Science or Technology and the Arts, Humanities or Social Sciences (STAS)

APPENDIX – SAMPLE PROGRAMS

This appendix consists of four sample sequences that incorporate the proposed Gen Ed program into existing majors.

The first was done by the undergraduate director of AMS, Estie Arkin, and is a suggested program for Applied Mathematics and Statistics as is currently in the undergraduate bulletin.

The second example is a BME major (biomedical engineering), as prepared by Molly Frame, undergrad director of that program, in collaboration with the committee. The sample indicates how a student can meet general education requirements in a high-credit major such as engineering majors and the Journalism major. Despite the high credit requirement, however, many students enter Stony Brook having satisfied Gen Ed requirements such as the language requirement via AP or other test scores. While at Stony Brook, students will also be able to reduce their credit requirements by taking double-certified courses. For example, in the BME sample program, an ethnomusicology sequence of two double-certified courses ("The History of Global Music") would allow students to satisfy four requirements with two courses, thereby expediting the progress towards graduation.

The next two samples are a bit different: they are the actual courses taken by two students who graduated in May 2012, one a student in the mathematics teacher-prep program, and the other a biology student with a political science minor. These students were not "hand-picked"—We took the first teacher-prep student who did not enter as a transfer, and the first biology major in Scott Sutherland's 2008 MAT125 class. In these cases, we matched the courses taken to the new requirements.   Courses required for the major are in bold, those for the minor are in red, and the new Gen Ed requirements are in the final column. The BIO major /POL minor student took quite a few "extra" credits (140 total, compared to the minimum requirement of 120), but there are quite a few credits (marked with yellow) that would not be required under the new system.