Assessment

of the

Stony Brook Curriculum

An analysis of evidence regarding undergraduate student performance on the SBC learning objectives and learning outcomes during the spring 2018 semester

Office of Academic Assessment

07 November 2019

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Executive Summary

Background

Following several years of faculty-led planning, Stony Brook undergraduate students implemented a new general education curriculum for undergraduate students called The Stony Brook Curriculum (SBC) in fall 2014. In fall 2017, the faculty and administration launched a pilot project to study the effectiveness of the SBC, coordinated to coincide with the graduation of the SBC's first four-year cohort in Spring 2018. This report presents an analysis of evidence this project gathered regarding undergraduate student performance on the SBC learning objectives and learning outcomes.

The intent of this pilot project is to establish baseline evidence for future projects, and as such, this report does not include historical evidence from similar studies. This project, as detailed in the assessment plan, is the first of its kind at Stony Brook University to aggregate measurements of multiple faculty-defined general education learning objectives across departments, colleges, and schools.

The SBC comprises 19 learning objectives and 69 learning outcomes. For this project, the faculty elected to collect evidence on 15 of the 19 objectives (62 of the 69 outcomes), as indicated in the table of contents of this document among Demonstrate Versatility, Explore Interconnectedness, and Prepare for Life-Long Learning. The faculty elected to delay assessment of the four objectives (seven learning outcomes) among Pursue Deeper Understanding that require additional time and planning to assess at a later date: Experiential Learning (EXP+), Humanities and Fine Arts (HFA+), Social and Behavioral Sciences (SBS+) and Science, Technology, Engineering, and Mathematics (STEM+). The appendix and the Undergraduate Bulletin contain a complete list of SBC objectives and outcomes.

A collection of committees and faculty working groups, comprising 24 faculty and 8 administrators, established the evaluation tools and methods of local measurements of the SBC. (See appendix for a list of the faculty and staff participants in the project.) These groups selected to evaluate a total of 91 course sections among spring 2018 offerings based on a set of faculty-defined criteria (see appendix for methodology and course selection criteria). The 91 sections represent all departments, programs, colleges and schools that offer undergraduate classes. A minimum of 87 faculty taught the 91 sections. The faculty committees developed 15 unique SBC Evaluation Rubrics to evaluate students, and based on these rubrics, we received evaluations of students from 86 of the 91 sections, or from 83 of the 87 faculty. The faculty collectively sampled 9,220 student evaluations, comprising 7204 unique students (some students were in more than one of the 86 sections), and resulting in over 27,000 rows of data.

Local measures in this project included direct evaluations by 83 faculty among 86 class sections, as well as indirect measures from course evaluations conducted in fall 2017 and spring 2018. In these two semesters, we implemented two new questions on the course evaluation survey, as approved by the course evaluation committee in November 2017. For further information, see "2017-2018 Course Evaluation Survey Results by SBC" in the appendix.

Additional indirect measures include those from the National Survey of Student Engagement and the SUNY Student Opinion Survey, as conducted among Students at Stony Brook University.

In addition to direct and indirect measurements of student performance on general education, we conducted a survey of graduating senior students in Spring 2018 on the subject of the Stony Brook Curriculum and surveyed faculty and staff in fall 2018. We have included the results of these studies in the appendix.

Philosophy

We took the approach that "assessment" is the culmination of using information gleaned from observation, measurement, evaluation, analysis and research to recommend an action for improvement. We devoted much effort to (a) disambiguating terminologies that are often conflated (assessment, evaluation, grading, analysis, research) and (b) addressing anxieties around the term "assessment" resulting from preconceived notions or perceptions among the community. Throughout the project, our intent was to be meaningful; i.e., to induce improvement in the curriculum.

During the project, we strove to uphold two essential elements of meaningful assessment: *Process* and *Data*.

Process: The Office of Academic Assessment endeavored to communicate to the Stony Brook Community as well as to solicit participation and contributions from the community. We established a structure of committees populated by faculty (primarily) and staff, and we solicited feedback from students, faculty and staff; i.e., we focused much attention on the discussion itself. The discussions leveraged the experience and intuition of the participants and resulted in observations and discoveries that we would have not otherwise realized from the data alone. We hope that the process in and of itself has enhanced the collective knowledge and acceptance of both the SBC and approaches to assessment in general.

Data: Reliable data is key to developing an effective analysis and is the foundation for discussions and decisions. The Office of Academic Assessment employed an expert in statistics and assessment during this project. Our intent was to establish and implement a methodology that would result in the best possible set of data under the circumstances. We studied methodologies and techniques as well as the professional literature, and consulted with expert faculty and professionals on campus. We made our best attempt to adapt appropriate methodologies and techniques to this project.

Format

The bookends of this report are the executive summary and appendix, which include a collection of supporting details and documents. The body of the report presents information gathered during this project, aggregated by SBC learning objective into mini-reports. Each mini-report follows the same format to address three questions for each SBC objective:

- *What were we measuring?* A quote of the language from the Undergraduate Bulletin for each SBC objective, including the learning outcomes and standards for each.
- *What were the results?* In all instances, the report includes the unweighted results from at least two sources:
  - Local results of direct measurements. Instructors in the selected course sections used the unique SBC Evaluation Rubrics that the faculty working groups developed to evaluate their students on a five-point scale: Absent (1) Beginning (2), Developing (3), Accomplished (4) and Exemplary (5). The faculty chose a five-point scale for its intuitive alignment with the traditional ABCDF grading scheme. Instructors evaluated their students on each learning outcome, and had the option of selecting (0) for "did not attempt" to identify students who did not participate in the evaluation process. Results reflect achievement of each student as judged directly by faculty for each learning outcome of each SBC objective, (e.g., ARTS1, ARTS2, etc.), as well as the unweighted average of evaluations among all learning outcomes within the specific SBC objective (e.g., ARTS average), and the unweighted average of evaluations for all objectives across all SBC (SBC average).
  - Indirect measurements: In each case, the report includes aggregated responses to the course evaluation process. The data for each SBC objective in the course evaluation results correspond to the same students who faculty evaluated per SBC objective. In some cases where there was an alignment of outcomes, we also included results from the recent National

Survey of Student Engagement and the SUNY Student Opinion Survey, as conducted among Students at Stony Brook University.

- *What did we learn?* The report includes a brief description of observations of each SBC objective.

Overall Recommendations and Observations

Throughout the project, our intent was to be meaningful; i.e., to induce improvement in the curriculum. As the project progressed, we gleaned observations from participants for each SBC objective as well as for the SBC as a whole. Through discussions among groups of faculty, recommendations emerged as both important and potentially actionable. The observations and recommendations are organized by categories: Curriculum and Delivery; Logistics; Assessment Process; and All of the Above. Although the format of the report on each SBC objective includes observations and recommendations specific to that objective (see "Format" above), not all recommendations for each SBC objective are actionable. Overall observations and recommendations include those that reflect the consensus of the several faculty groups and stakeholders who participated in the process.

Please see appendix for "overall recommendations and observations."

Demonstrate Versatility

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

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

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.

Local Results of Pilot Assessment Project

Table 1. Percent of sample by evaluated level

	Students Evaluated	Courses Evaluated	Absent (1)	Beginning (2)	Developing (3)	Accomplished (4)	Exemplary (5)	Developing or Above
ARTS 1	312	3	7%	7%	18%	36%	32%	87%
ARTS 2	384	4	15%	9%	17%	28%	30%	76%
ARTS 3	48	1	0%	2%	10%	29%	58%	98%
ARTS 4	219	2	8%	6%	18%	32%	37%	86%
Average	–	–	8%	6%	16%	31%	39%	86%

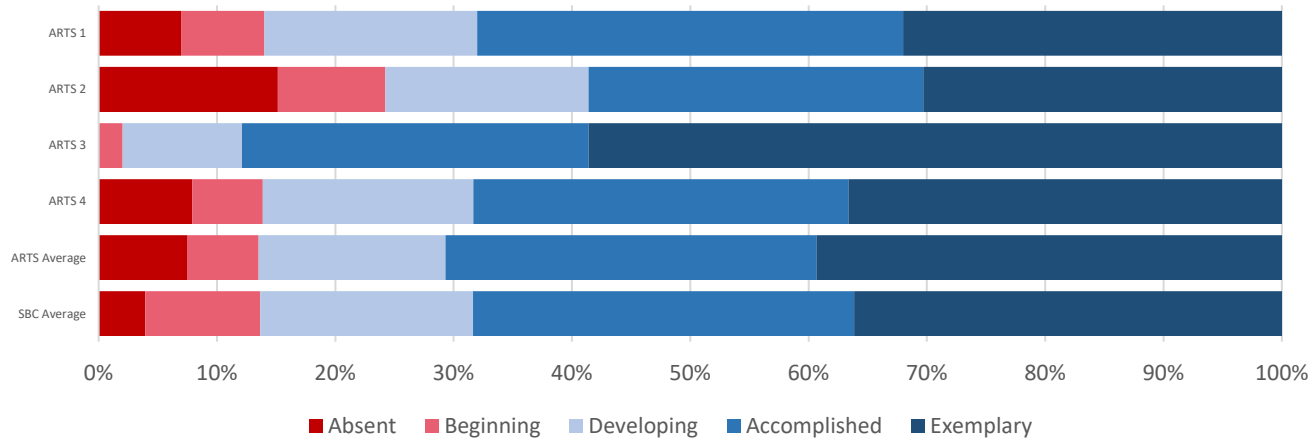


Figure 1. Percent of sample of SBC Learning Outcomes by evaluated level

Indirect measurement: Course Evaluation Survey Results

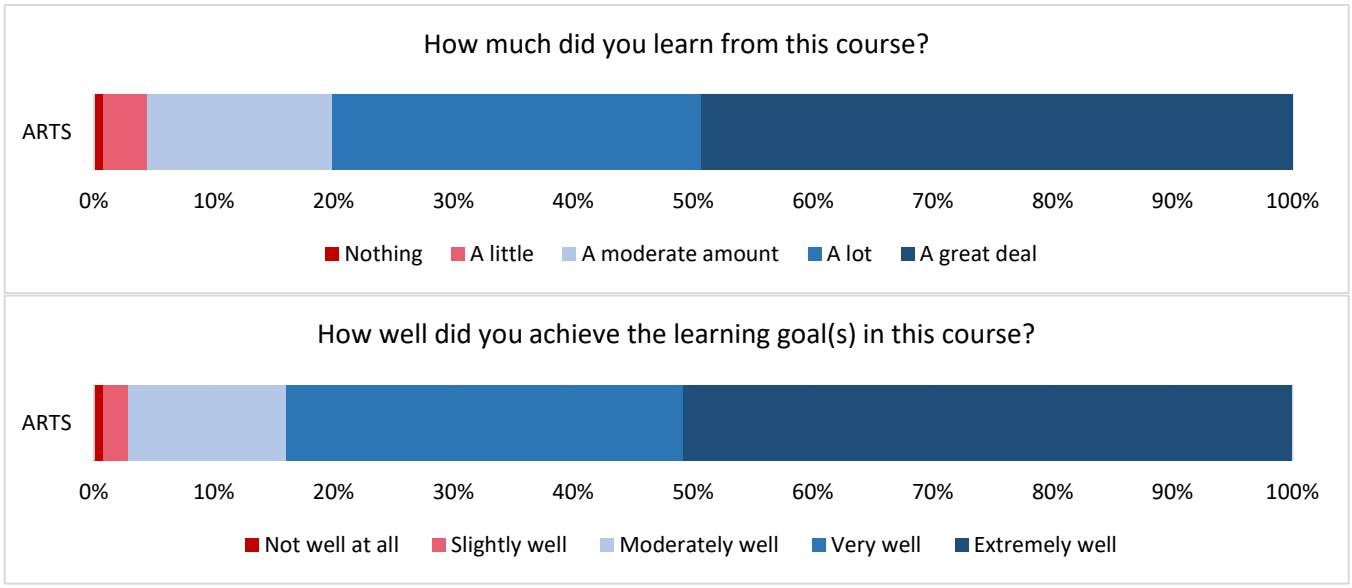


Figure 2. Percent of student participants in course evaluation by SBC

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

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

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. A significant portion of the course must address the diversity and interconnectedness of the world's societies and cultures.

Local Results of Pilot Assessment Project

Table 2. Percent of sample by evaluated level

	Students Evaluated	Courses Evaluated	Absent (1)	Beginning (2)	Developing (3)	Accomplished (4)	Exemplary (5)	Developing or Above
GLO 1	462	4	6%	28%	22%	22%	21%	66%
GLO 2	248	3	4%	13%	19%	32%	32%	83%
Average	–	–	5%	20%	21%	27%	26%	74%

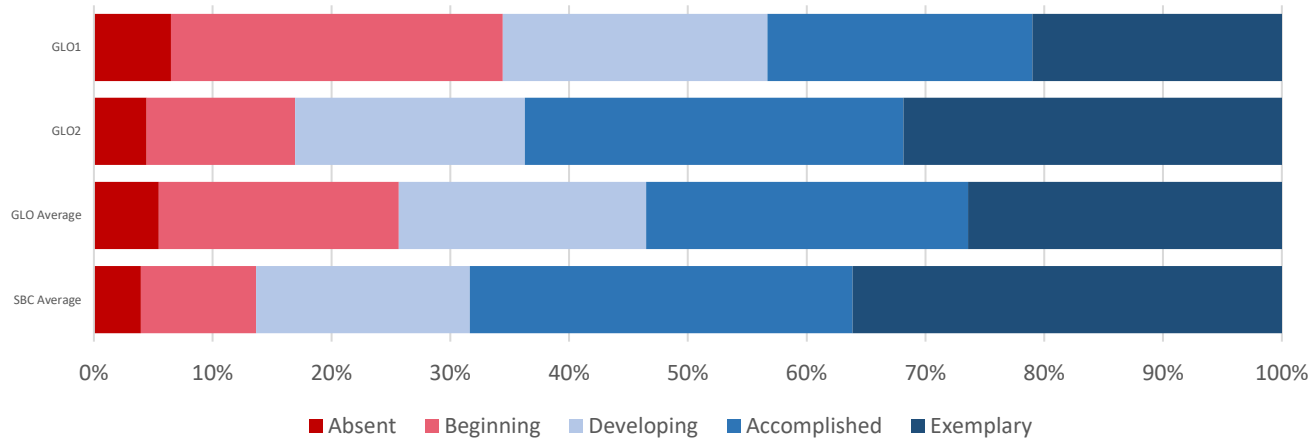


Figure 3. Percent of sample of SBC Learning Outcomes by evaluated level

Indirect measurement: Course Evaluation Survey Results

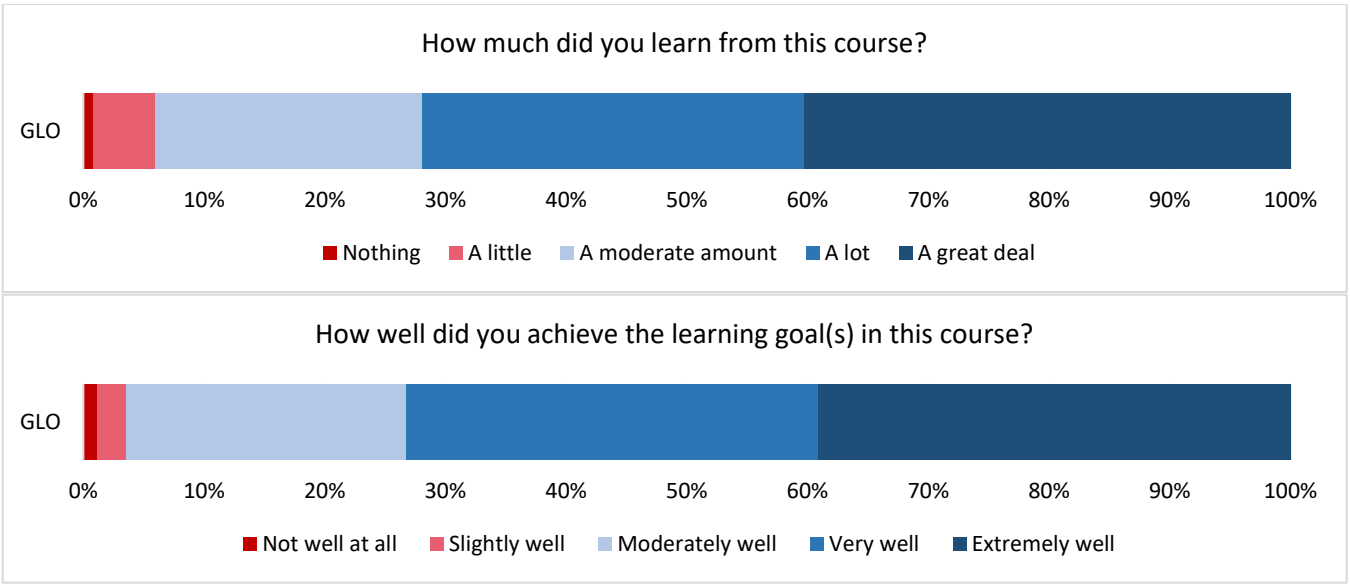


Figure 4. Percent of student participants in course evaluation by SBC

Indirect measurement: National Survey of Student Engagement

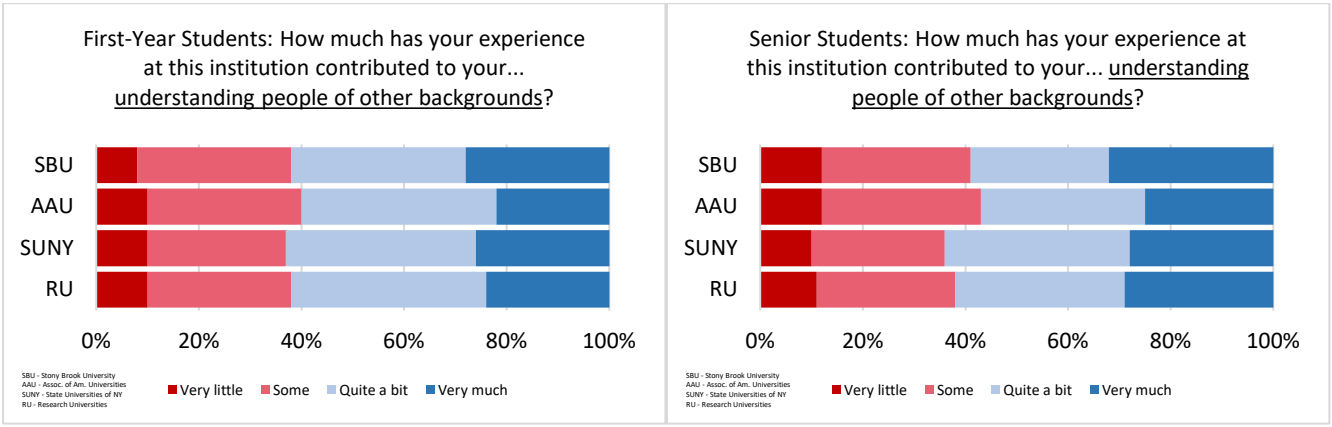


Figure 5. Percent of respondents to NSSE item by school type

Address Problems using Critical Analysis and the Methods of the Humanities (HUM)

The discipline of humanities has traditionally included the fields of the Arts, English, 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, European Languages, Literatures, and Cultures, 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

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, and moral) in which these issues emerged.
6. Develop the verbal and written skills to articulate valid arguments on these issues.

Standards

1. Certified courses shall fulfill at least four of the learning outcomes.

Local Results of Pilot Assessment Project

Table 3. Percent of sample by evaluated level

	Students Evaluated	Courses Evaluated	Absent (1)	Beginning (2)	Developing (3)	Accomplished (4)	Exemplary (5)	Developing or Above
HUM 1	414	6	4%	11%	26%	39%	21%	85%
HUM 2	414	6	14%	18%	17%	22%	28%	67%
HUM 3	105	3	0%	23%	15%	33%	29%	77%
HUM 4	414	6	7%	10%	20%	41%	22%	83%
HUM 5	105	3	0%	24%	15%	31%	30%	76%
HUM 6	412	6	5%	13%	20%	34%	28%	82%
Average	–	–	5%	17%	19%	33%	26%	78%

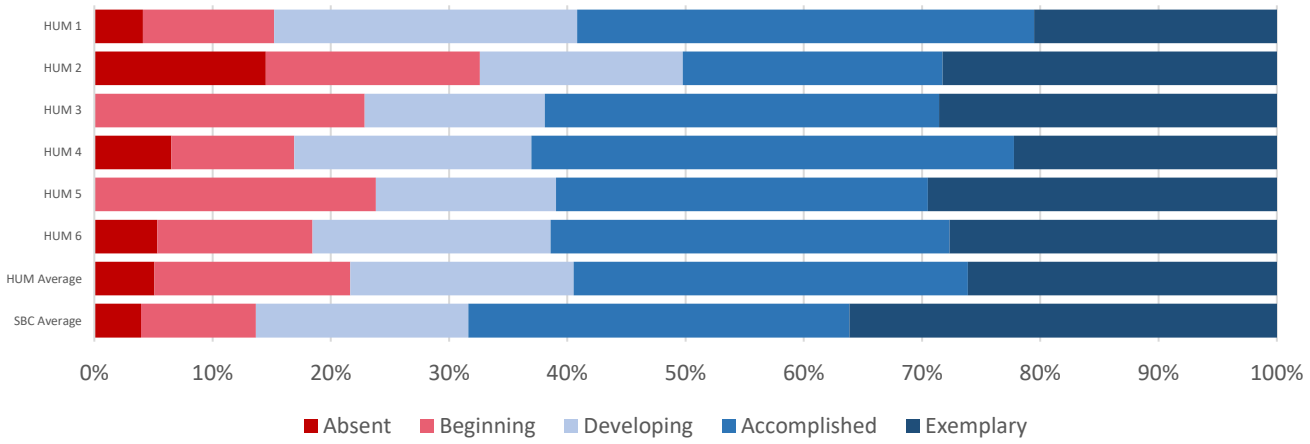


Figure 6. Percent of sample of SBC Learning Outcomes by evaluated level

Indirect measurement: Course Evaluation Survey Results

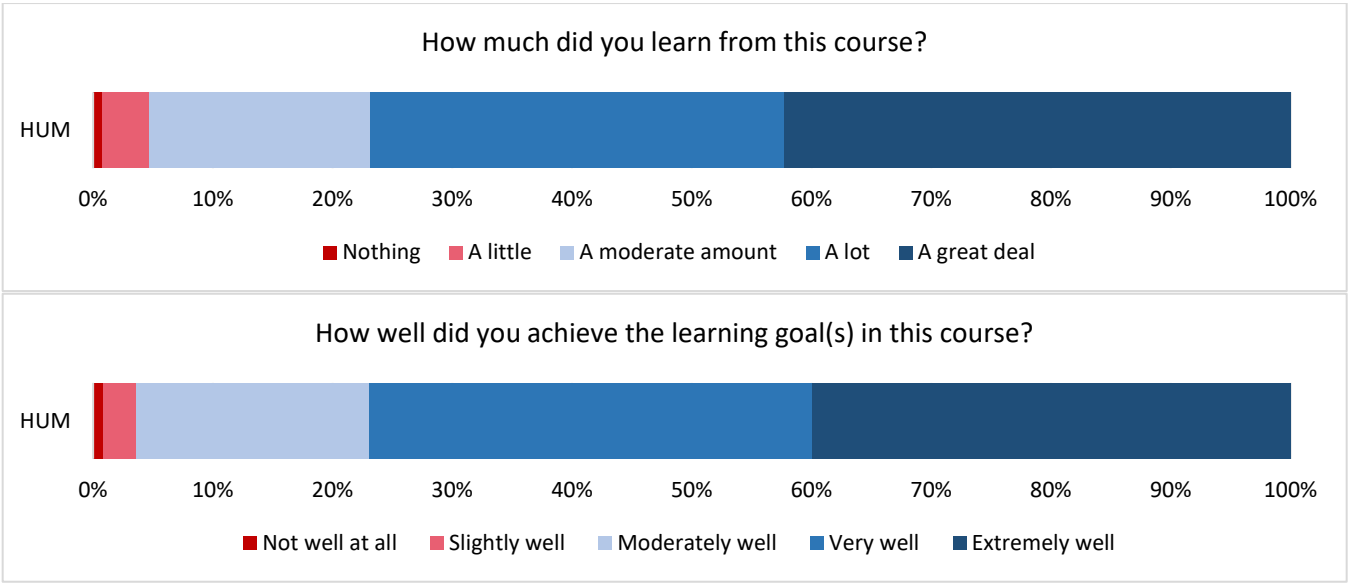


Figure 7. Percent of student participants in course evaluation by SBC

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 that students be knowledgeable about the people and culture associated with that language. The Stony Brook Curriculum requires the equivalent of two semesters of college-level language courses to acquire and practice these skills. Students must complete this requirement by completing the equivalent of language courses numbered 111 and 112 or 101. 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

1. a) Write, b) read, c) listen and d) 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

1. Certified language courses shall deliver instruction in basic writing, reading, listening and speaking and assess student performance in those areas.
2. A certified 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.

Local Results of Pilot Assessment Project

Table 4. Percent of sample by evaluated level

	Students Evaluated	Courses Evaluated	Absent (1)	Beginning (2)	Developing (3)	Accomplished (4)	Exemplary (5)	Developing or Above
LANG 1a	137	6	1%	6%	20%	38%	34%	93%
LANG 1b	137	6	1%	5%	5%	26%	64%	94%
LANG 1c	137	6	1%	4%	12%	22%	62%	96%
LANG 1d	137	6	0%	2%	17%	26%	55%	98%
LANG 2	137	6	1%	5%	10%	34%	50%	93%
LANG 3	115	5	0%	1%	6%	25%	68%	99%
Average	–	–	1%	4%	12%	28%	55%	95%

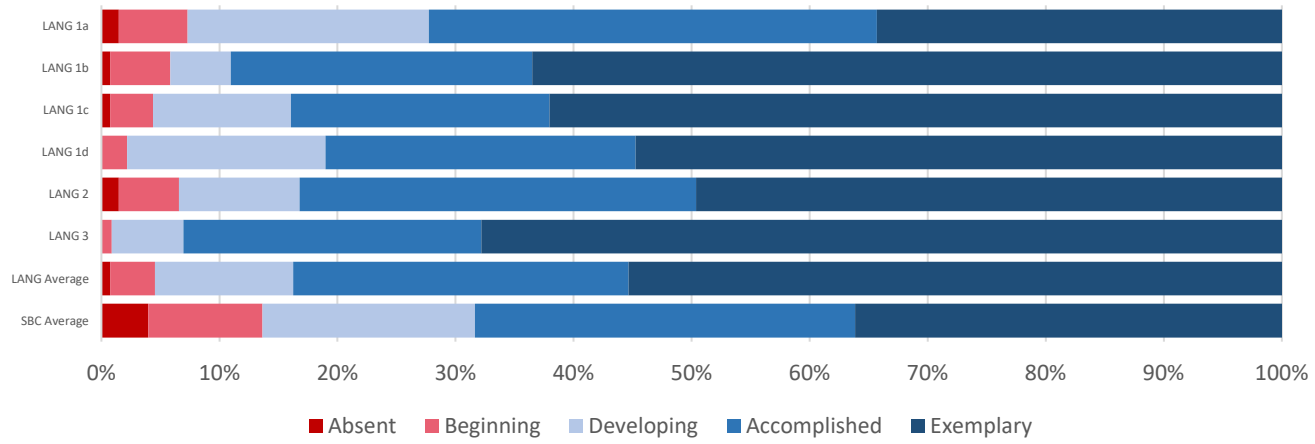


Figure 8. Percent of sample of SBC Learning Outcomes by evaluated level

Indirect measurement: Course Evaluation Survey Results

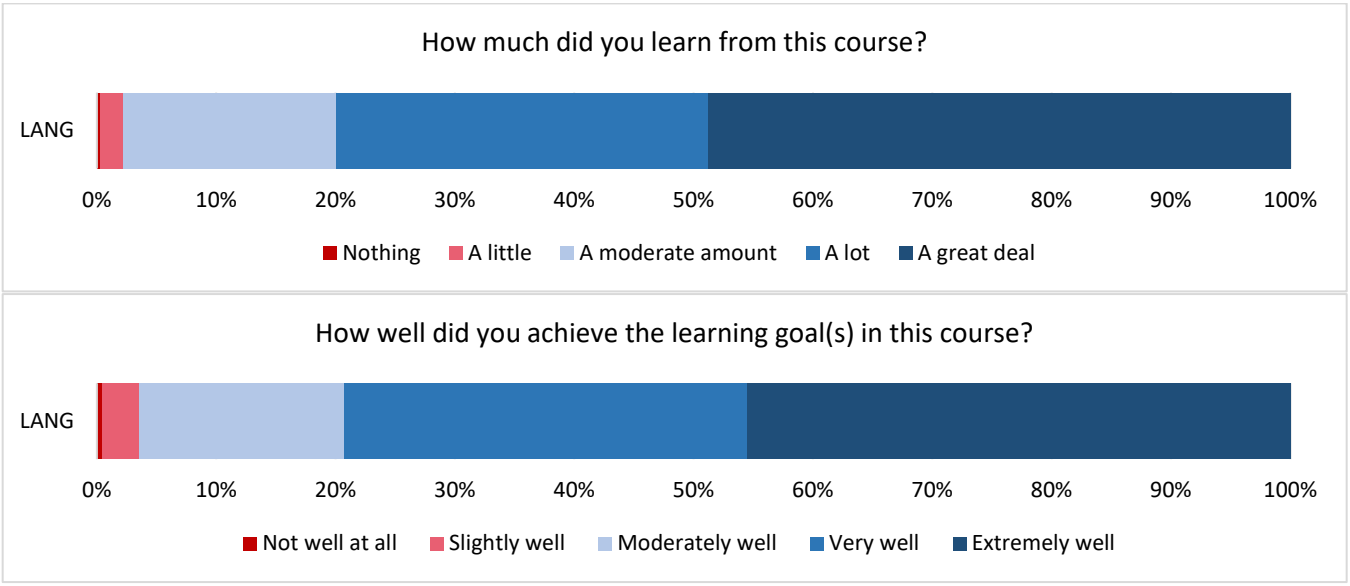


Figure 9. Percent of student participants in course evaluation by SBC

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

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

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

Local Results of Pilot Assessment Project

Table 5. Percent of sample by evaluated level

	Students Evaluated	Courses Evaluated	Absent (1)	Beginning (2)	Developing (3)	Accomplished (4)	Exemplary (5)	Developing or Above
QPS 1	821	8	5%	4%	9%	21%	62%	91%
QPS 2	755	8	5%	7%	12%	20%	55%	87%
QPS 3	764	8	6%	4%	10%	15%	66%	90%
QPS 4	800	7	8%	3%	9%	19%	60%	89%
QPS 5	304	4	10%	5%	21%	35%	29%	85%
Average	–	–	7%	5%	12%	22%	54%	89%

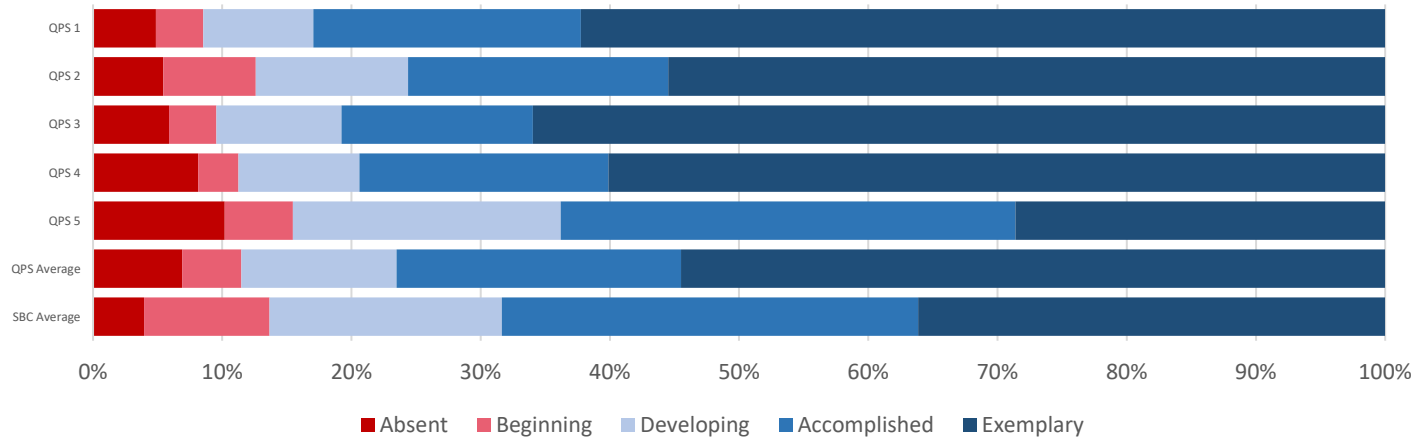


Figure 10. Percent of sample of SBC Learning Outcomes by evaluated level

Indirect measurement: Course Evaluation Survey Results

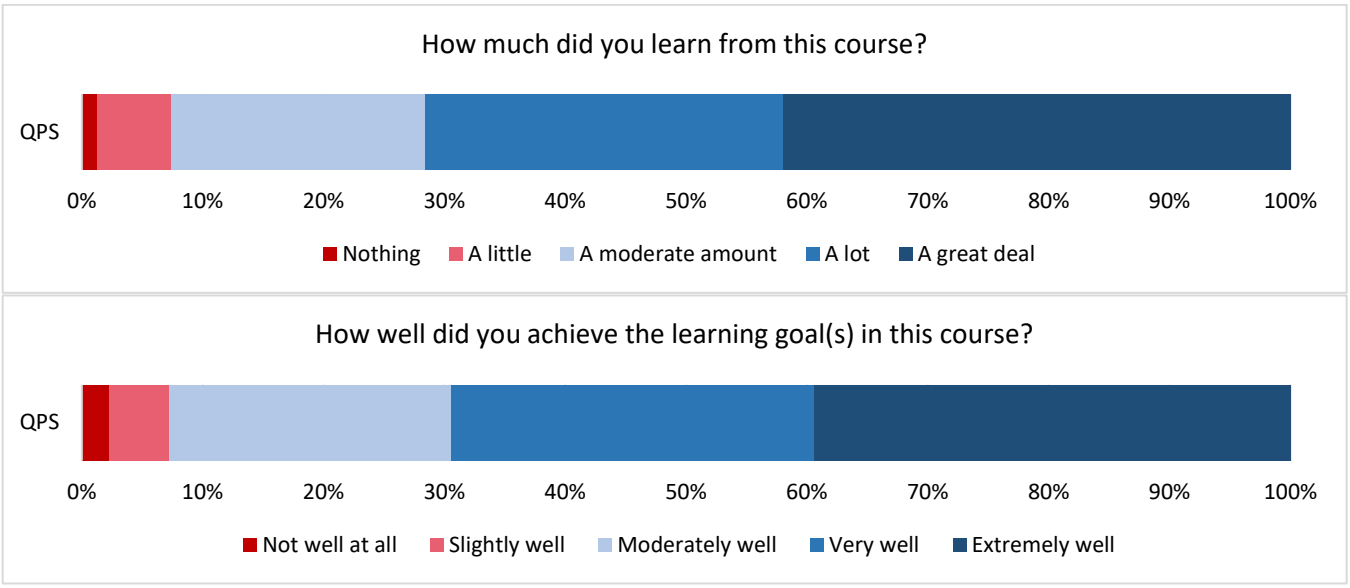


Figure 11. Percent of student participants in course evaluation by SBC

Indirect measurement: National Survey of Student Engagement

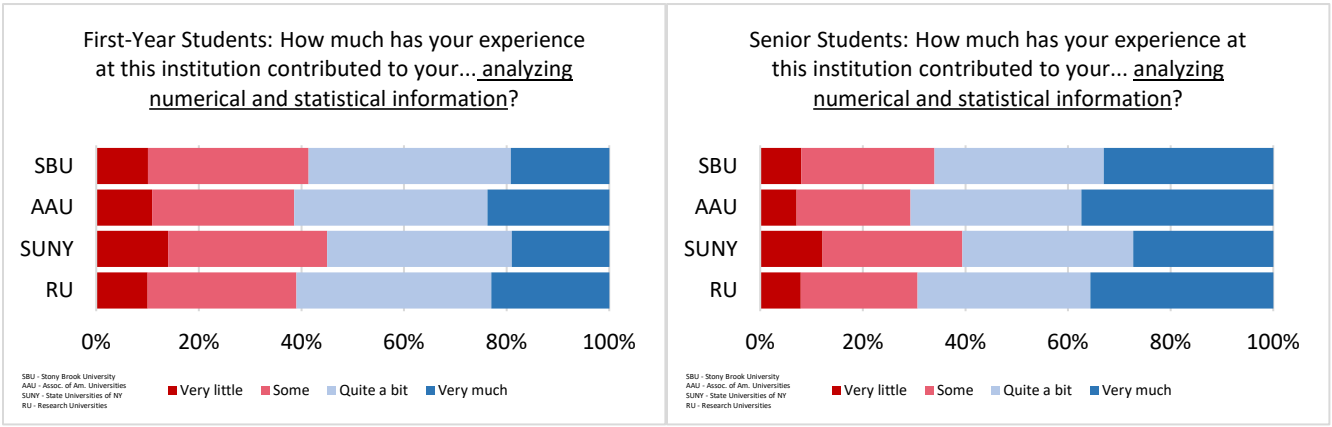


Figure 12. Percent of respondents to NSSE item by school type

Understand, Observe, and Analyze Human Behavior, the Structure & Functioning of Society (SBS)

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

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

1. Certified social science courses shall fulfill any two of the above outcomes and have a broad content in a specific area of social sciences.

Local Results of Pilot Assessment Project

Table 6. Percent of sample by evaluated level

	Students Evaluated	Courses Evaluated	Absent (1)	Beginning (2)	Developing (3)	Accomplished (4)	Exemplary (5)	Developing or Above
SBS 1	1022	4	2%	21%	18%	27%	32%	77%
SBS 2	850	4	3%	23%	20%	30%	24%	74%
SBS 3	1096	5	6%	11%	16%	24%	43%	83%
SBS 4	783	3	4%	23%	17%	26%	29%	73%
Average	–	–	4%	19%	18%	27%	32%	77%

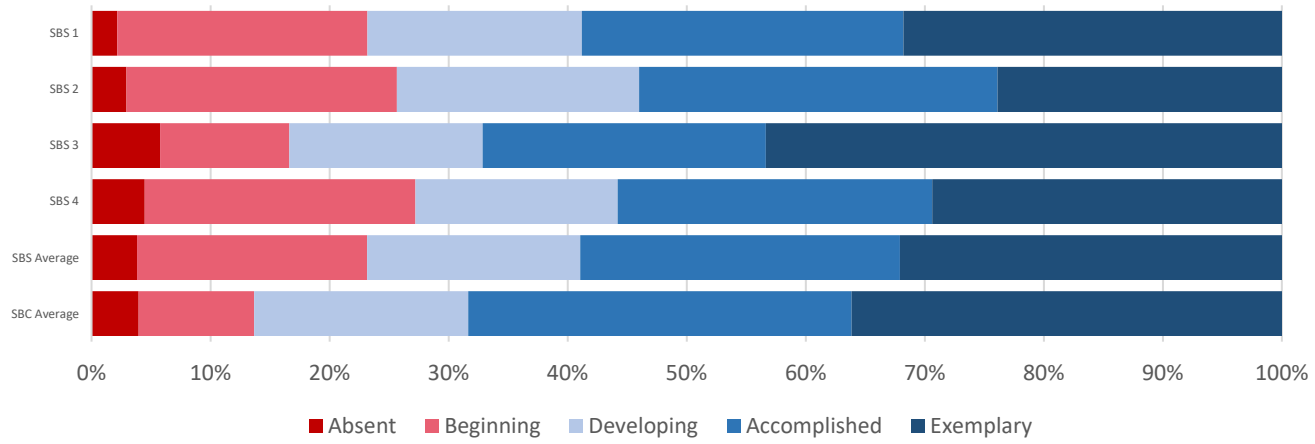


Figure 13. Percent of sample of SBC Learning Outcomes by evaluated level

Indirect measurement: Course Evaluation Survey Results

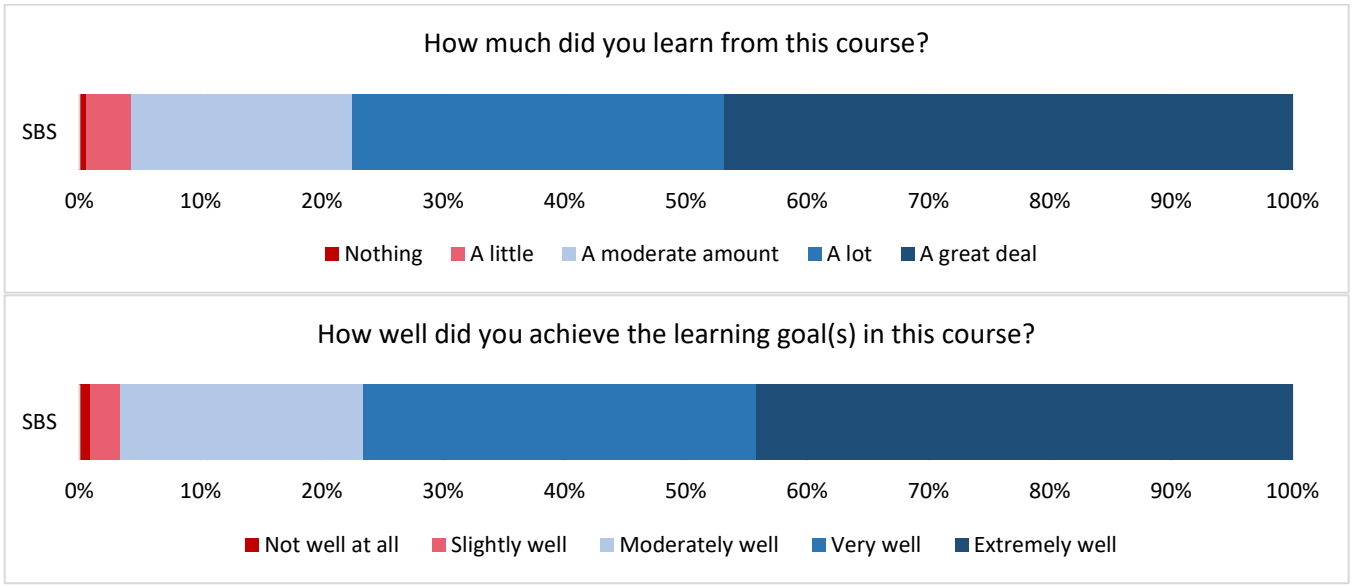


Figure 14. Percent of student participants in course evaluation by SBC

Indirect measurement: Student Opinion Survey

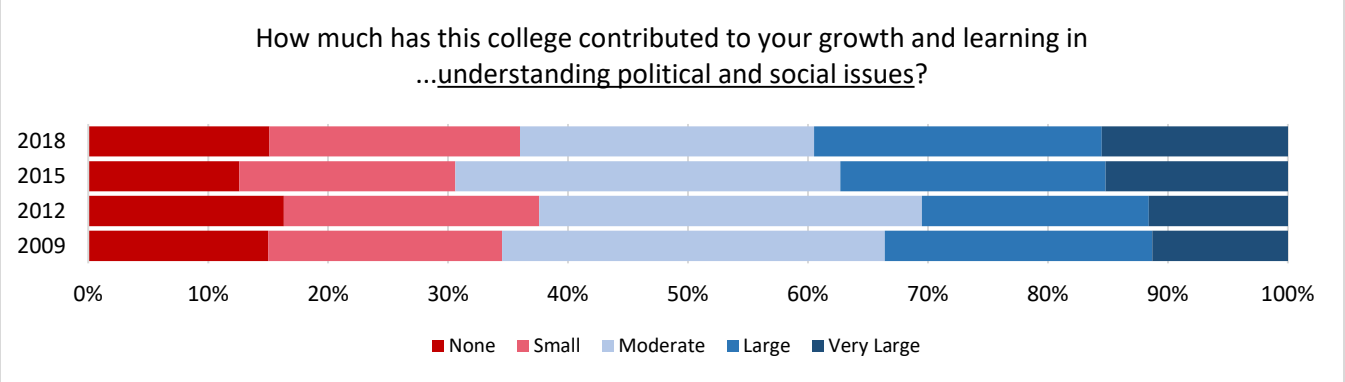


Figure 15. Percent of respondents to SOS item by year

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

1. Understand the methods scientists use to explore natural phenomena including observation, hypothesis development, measurement and data collection, experimentation, and evaluation of evidence.
2. Understand the natural world and the major principles and concepts that form the basis of knowledge in the natural sciences.
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

1. Certified natural science courses shall fulfill outcome 1 (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.

Local Results of Pilot Assessment Project

Table 7. Percent of sample by evaluated level

	Students Evaluated	Courses Evaluated	Absent (1)	Beginning (2)	Developing (3)	Accomplished (4)	Exemplary (5)	Developing or Above
SNW 1	2012	7	8%	22%	23%	23%	25%	71%
SNW 2	2015	7	12%	27%	23%	23%	14%	61%
SNW 3	1800	6	19%	16%	28%	23%	14%	65%
SNW 4	325	2	10%	7%	15%	27%	41%	83%
Average	–	–	12%	18%	22%	24%	24%	70%

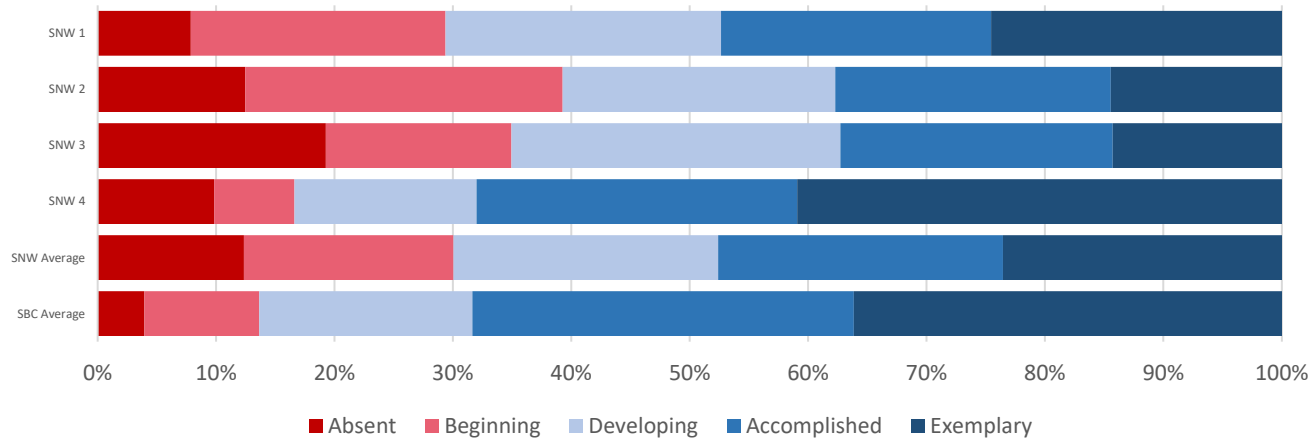


Figure 16. Percent of sample of SBC Learning Outcomes by evaluated level

Indirect measurement: Course Evaluation Survey Results

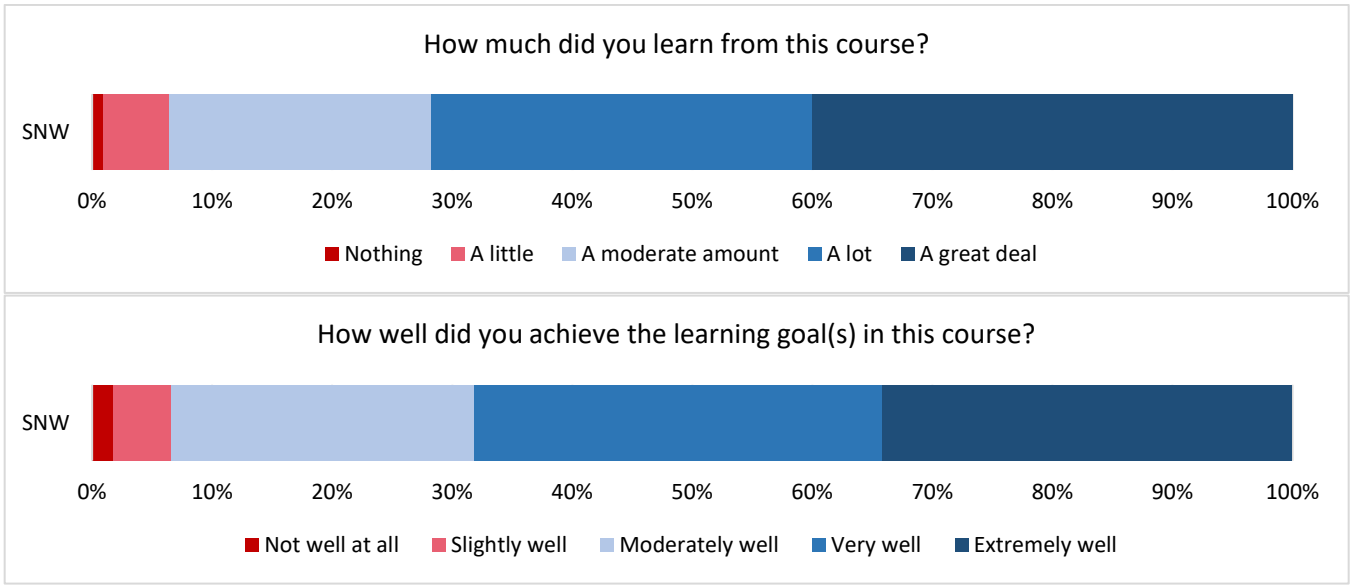


Figure 17. Percent of student participants in course evaluation by SBC

Understand Technology (TECH)

Arthur C. Clarke wrote, "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 do not 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

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. The “human-made world” is defined for this purpose as “artifacts of our surroundings that are conceived, designed, and/or constructed using technological tools and methods.”

Standards

1. Courses must satisfy both learning objectives.

Local Results of Pilot Assessment Project

Table 8. Percent of sample by evaluated level

	Students Evaluated	Courses Evaluated	Absent (1)	Beginning (2)	Developing (3)	Accomplished (4)	Exemplary (5)	Developing or Above
TECH 1	939	7	3%	5%	7%	48%	37%	92%
TECH 2	923	7	4%	6%	8%	39%	42%	89%
Average	–	–	4%	5%	8%	44%	39%	91%

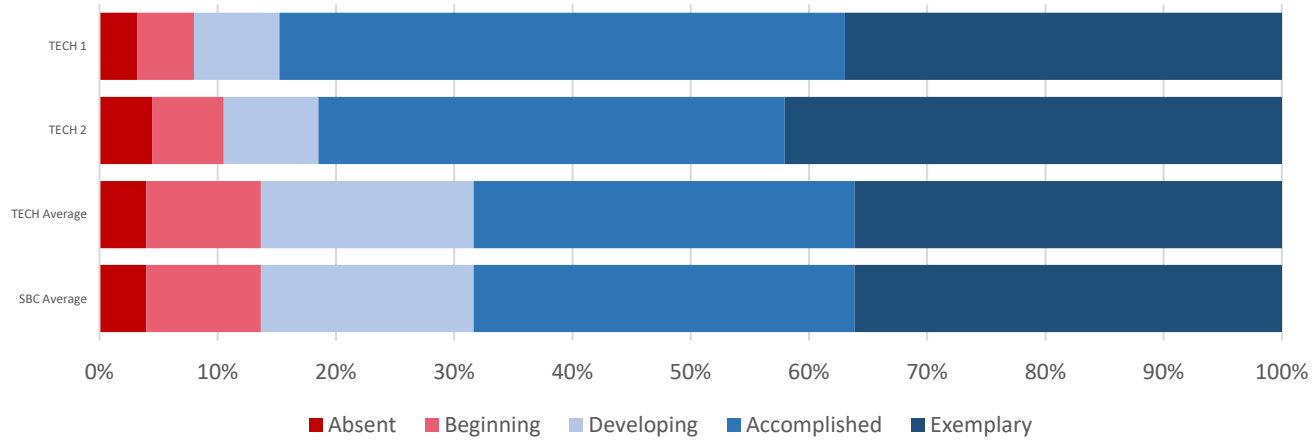


Figure 18. Percent of sample of SBC Learning Outcomes by evaluated level

Indirect measurement: Course Evaluation Survey Results

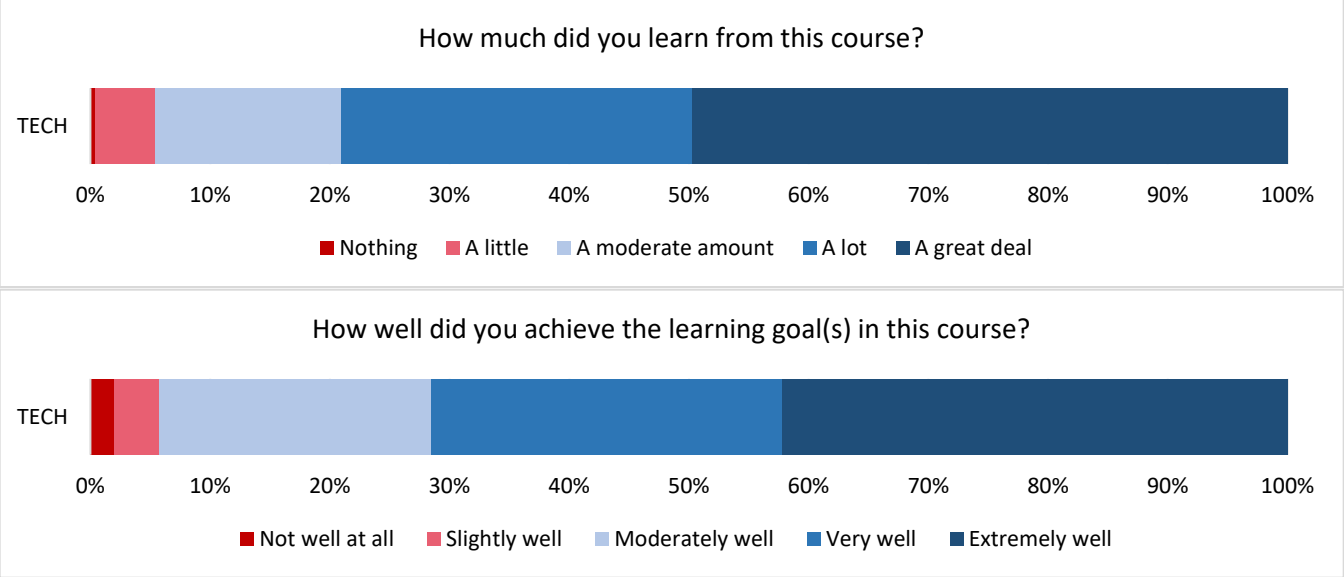


Figure 19. Percent of student participants in course evaluation by SBC

Indirect measurement: Student Opinion Survey

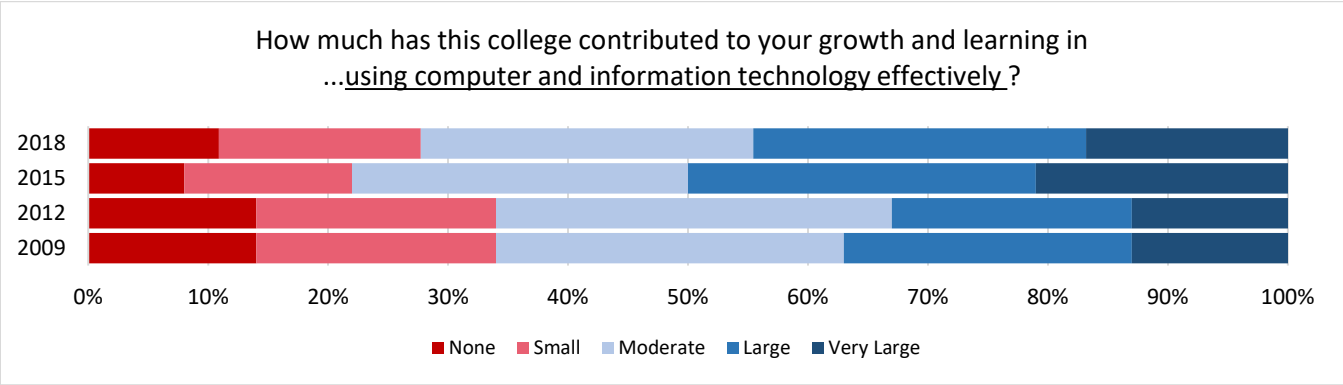


Figure 20. Percent of respondents to SOS item by year

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, and 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

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

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.

Local Results of Pilot Assessment Project

Table 9. Percent of sample by evaluated level

	Students Evaluated	Courses Evaluated	Absent (1)	Beginning (2)	Developing (3)	Accomplished (4)	Exemplary (5)	Developing or Above
USA 1a	204	5	1%	12%	19%	35%	32%	86%
USA 1b	204	5	1%	14%	21%	39%	25%	84%
USA 2	312	7	1%	6%	13%	38%	42%	93%
USA 3	312	7	1%	8%	12%	44%	35%	91%
Average	–	–	1%	10%	16%	39%	33%	89%

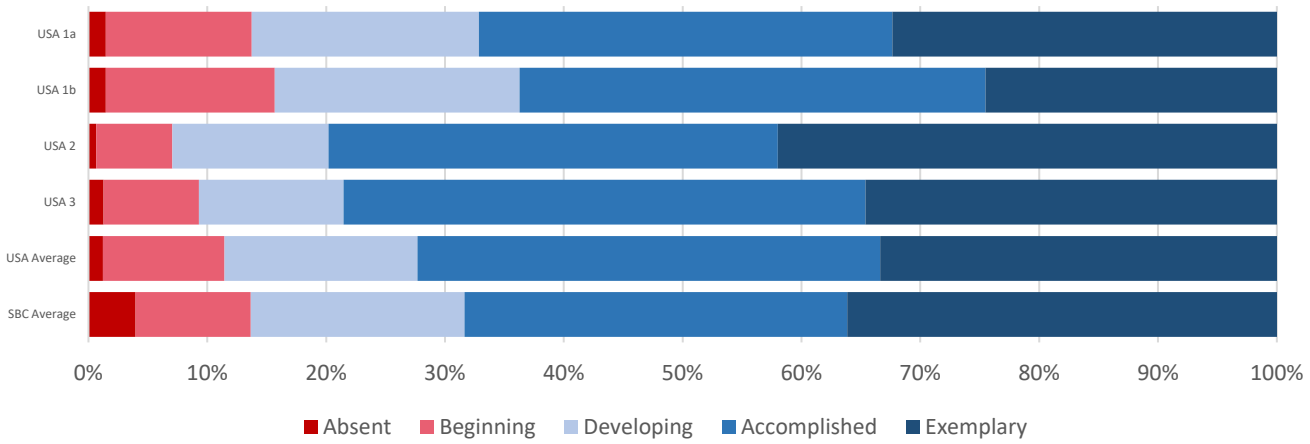


Figure 21. Percent of sample of SBC Learning Outcomes by evaluated level

Indirect measurement: National Survey of Student Engagement

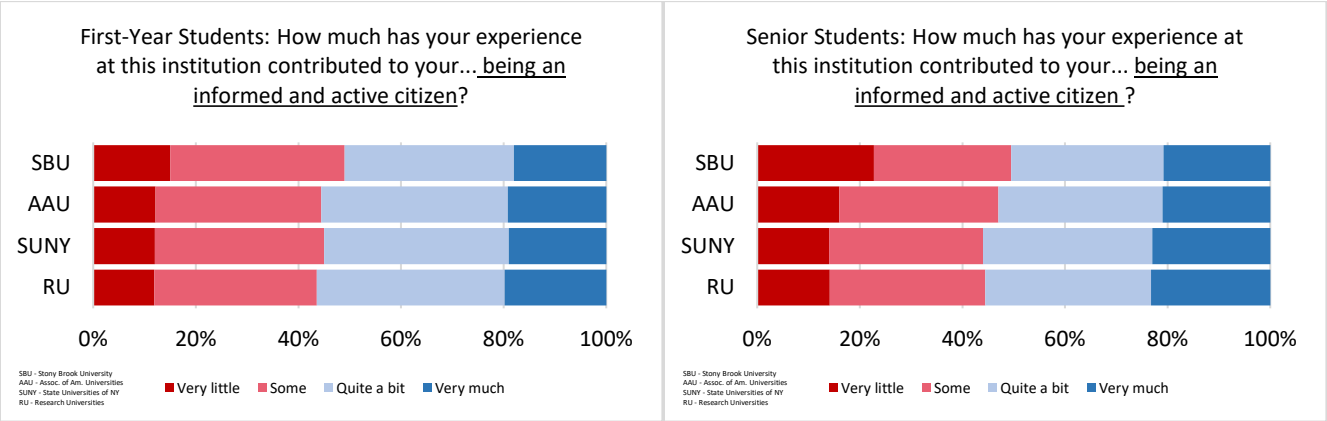


Figure 22. Percent of respondents to NSSE item by school type

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.

Learning Outcomes

1. a) Research a topic, b) develop an argument and c) organize supporting details.
2. Produce coherent texts within common college-level written forms.
3. Demonstrate the ability to revise and improve such texts.

Standards

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.

Local Results of Pilot Assessment Project

Table 10. Percent of sample by evaluated level

	Students Evaluated	Courses Evaluated	Absent (1)	Beginning (2)	Developing (3)	Accomplished (4)	Exemplary (5)	Developing or Above
WRT 1a	128	6	2%	4%	22%	38%	34%	95%
WRT 1b	128	6	2%	5%	26%	40%	27%	93%
WRT 1c	128	6	2%	5%	27%	37%	29%	93%
WRT 2	128	6	2%	4%	18%	45%	31%	94%
WRT 3	128	6	2%	5%	16%	41%	37%	94%
Average	–	–	2%	5%	22%	40%	32%	94%

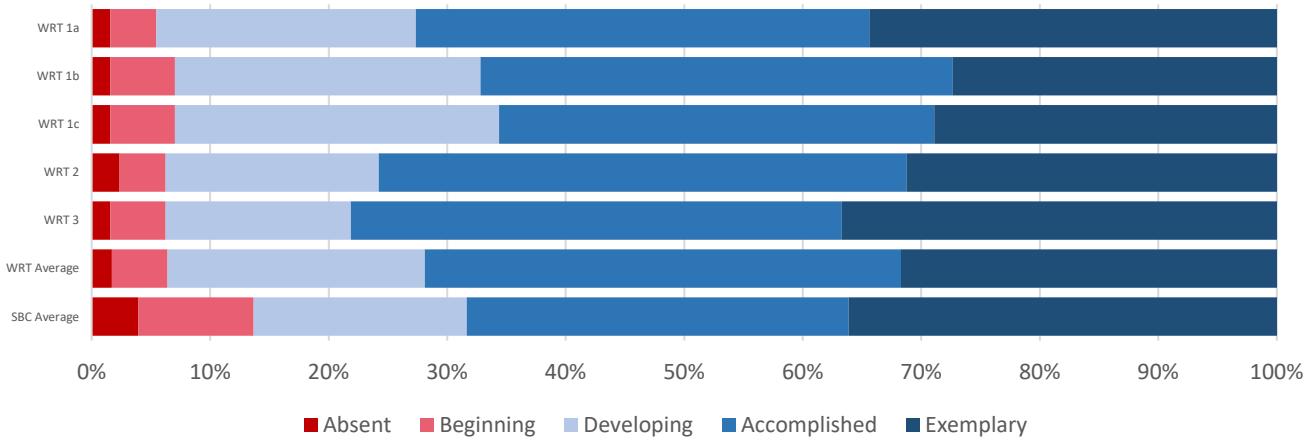


Figure 23. Percent of sample of SBC Learning Outcomes by evaluated level

Indirect measurement: Course Evaluation Survey Results

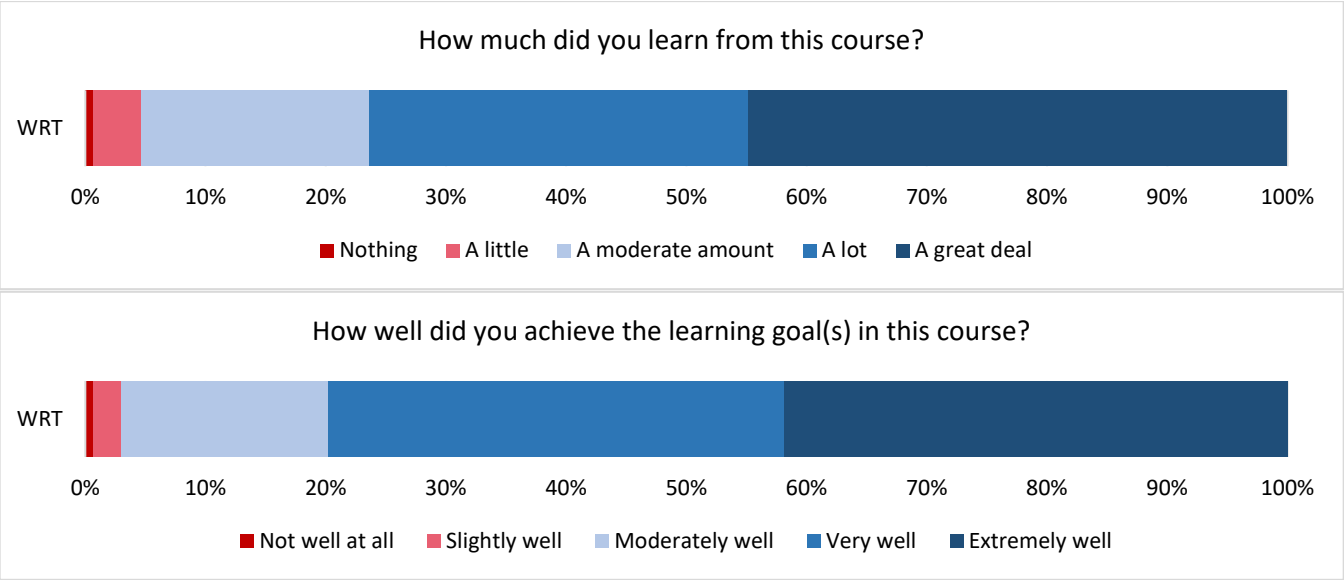


Figure 24. Percent of student participants in course evaluation by SBC

Indirect measurement: Student Opinion Survey

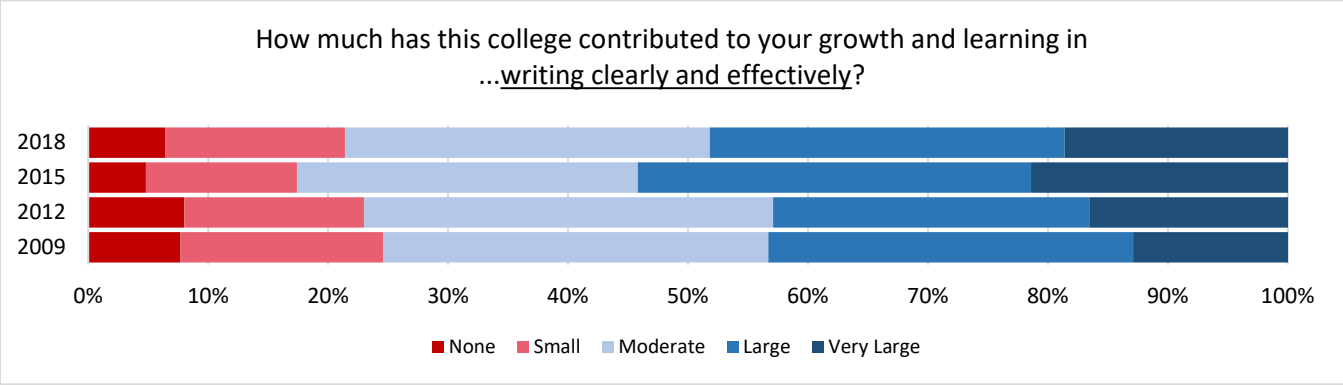


Figure 25. Percent of respondents to SOS item by year

Explore Interconnectedness

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

C.P. Snow wrote in 1959 about people of 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 warming or species extinction or internet security and to know enough to make well-informed decisions about such issues. Scientists, on the other hand, 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

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

1. A certified course shall fulfill both learning outcomes. Certified courses will devote significant time to consideration of the consequences of science or technology for social, economic, ethical, moral, political, artistic, and/or other domains of experience.
2. Because of the inherent interdisciplinary nature of the STAS learning objectives, STAS courses may not be multi-certified.

Local Results of Pilot Assessment Project

Table 11. Percent of sample by evaluated level

	Students Evaluated	Courses Evaluated	Absent (1)	Beginning (2)	Developing (3)	Accomplished (4)	Exemplary (5)	Developing or Above
STAS 1	518	5	9%	10%	19%	27%	35%	81%
STAS 2	516	5	8%	10%	20%	25%	37%	70%
Average	–	–	9%	10%	20%	26%	36%	85%

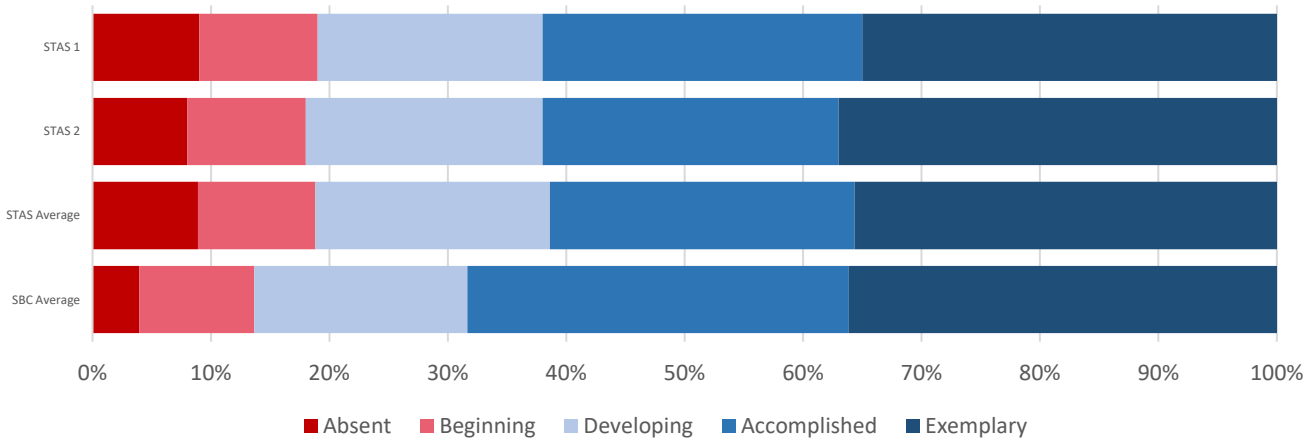


Figure 26. Percent of sample of SBC Learning Outcomes by evaluated level

Indirect measurement: Course Evaluation Survey Results

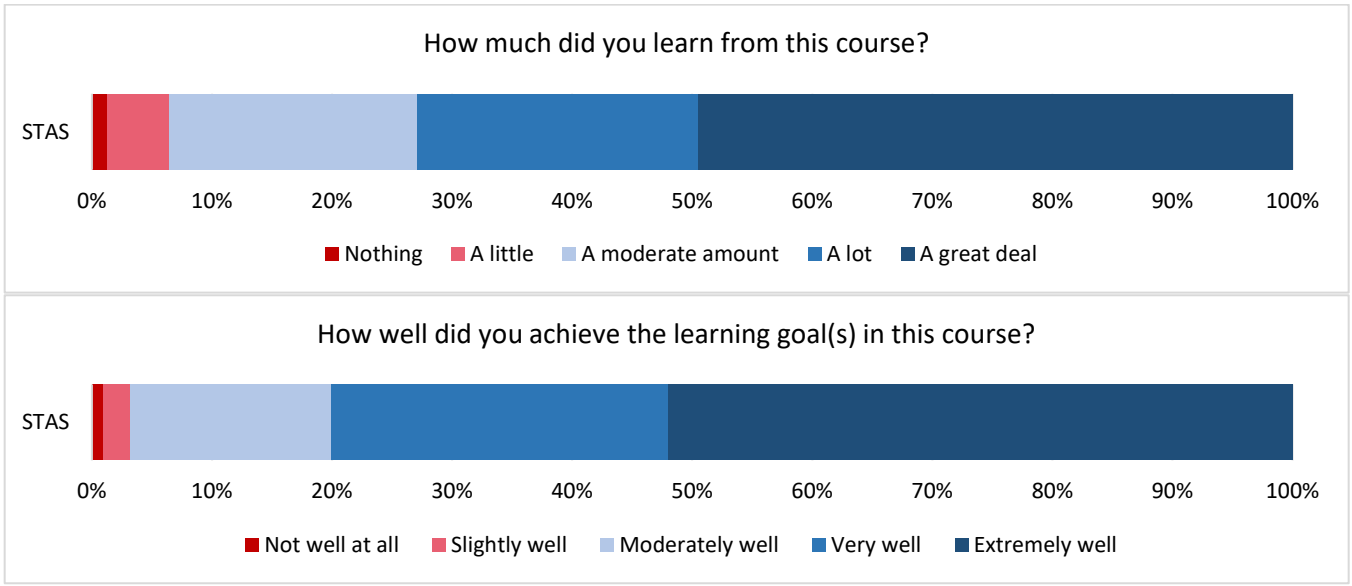


Figure 27. Percent of student participants in course evaluation by SBC

Prepare for Life-Long Learning

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

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

1. A certified course shall satisfy one of the three learning outcomes.

Local Results of Pilot Assessment Project

Table 12. Percent of sample by evaluated level

	Students Evaluated	Courses Evaluated	Absent (1)	Beginning (2)	Developing (3)	Accomplished (4)	Exemplary (5)	Developing or Above
CER 1	206	4	3%	16%	28%	29%	24%	81%
CER 2	150	3	1%	8%	18%	18%	55%	91%
CER 3	280	4	4%	6%	22%	24%	44%	90%
Average	–	–	3%	10%	23%	23%	41%	87%

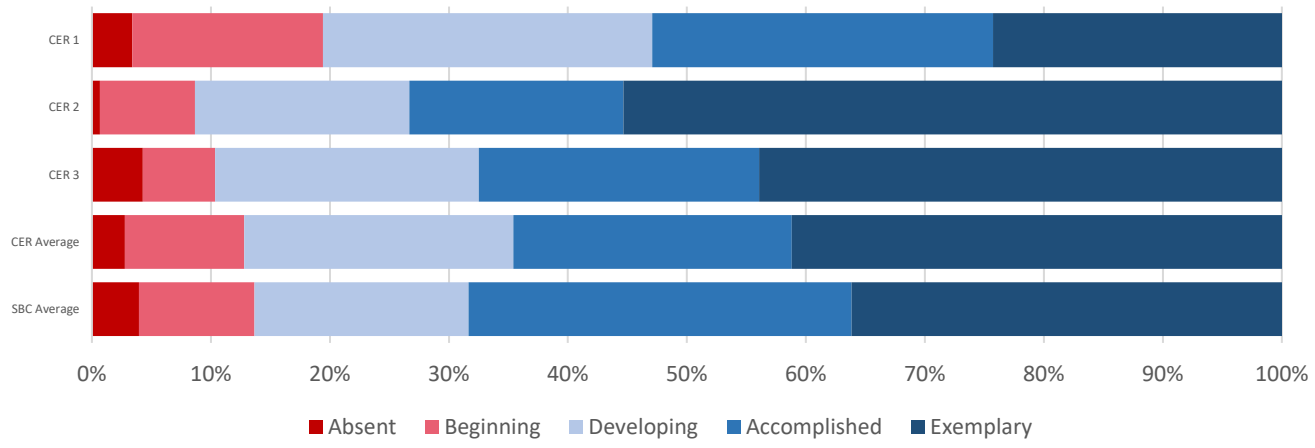


Figure 28. Percent of sample of SBC Learning Outcomes by evaluated level

Indirect measurement: Course Evaluation Survey Results

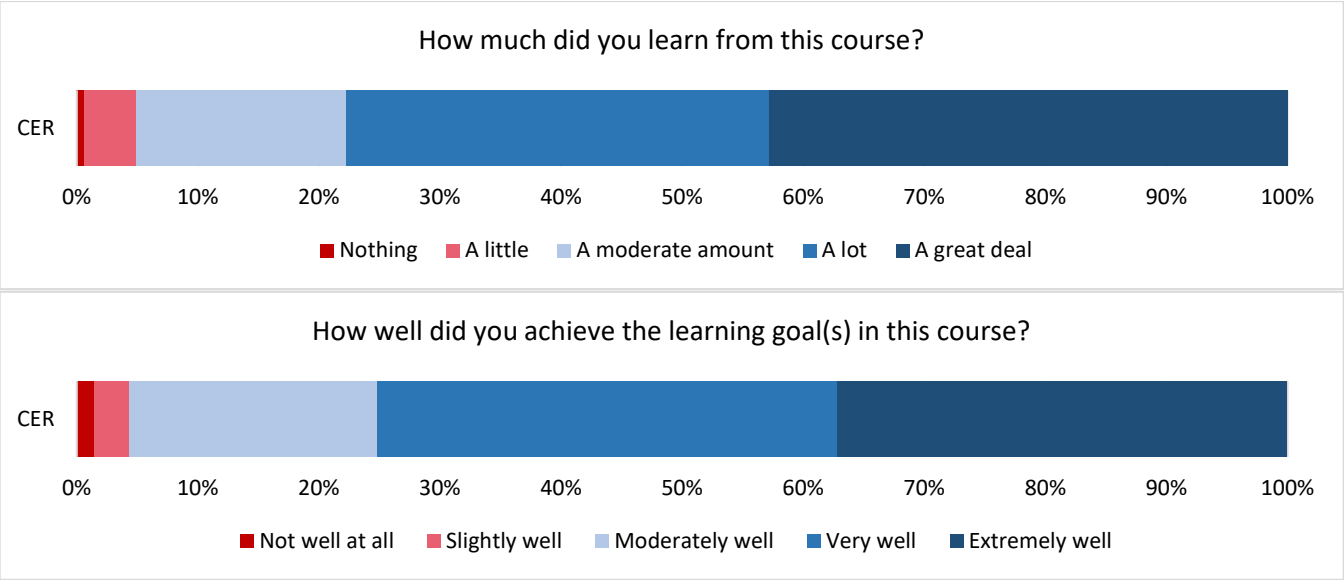


Figure 29. Percent of student participants in course evaluation by SBC

Indirect measurement: National Survey of Student Engagement

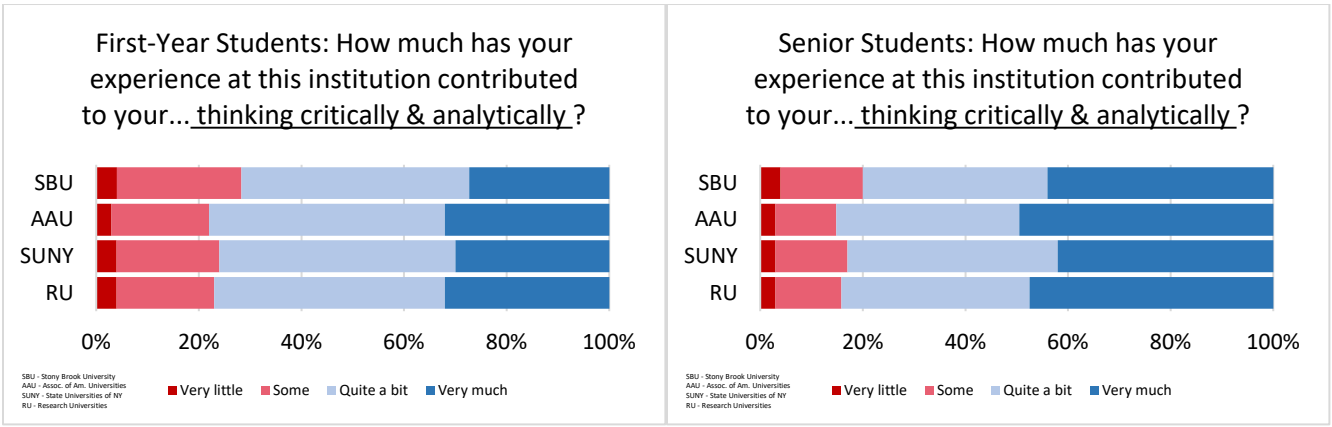


Figure 30. Percent of respondents to NSSE item by school type

Indirect measurement: Student Opinion Survey

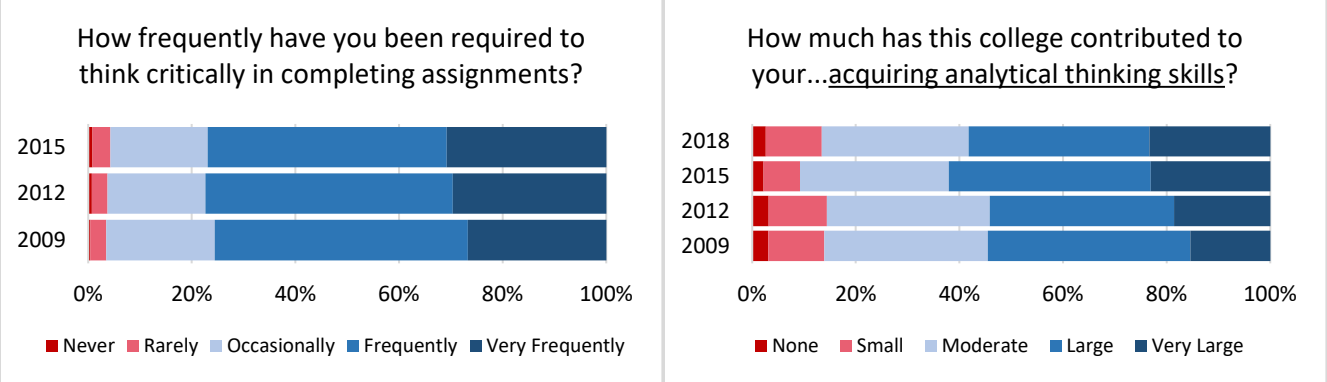


Figure 31. Percent of respondents to SOS item by year

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

1. Locate and organize information from a variety of appropriate sources.
2. Analyze the accuracy of information and the credibility of sources.
3. Determine the relevance of information.
4. Use information ethically and responsibly.

Standards

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.
2. A certified course shall achieve all four learning outcomes.

Local Results of Pilot Assessment Project

Table 13. Percent of sample by evaluated level

	Students Evaluated	Courses Evaluated	Absent (1)	Beginning (2)	Developing (3)	Accomplished (4)	Exemplary (5)	Developing or Above
ESI 1	346	6	5%	12%	12%	32%	40%	84%
ESI 2	346	6	10%	5%	27%	31%	27%	85%
ESI 3	345	6	2%	5%	17%	37%	39%	92%
ESI 4	349	6	7%	23%	13%	27%	30%	70%
Average	–	–	6%	11%	17%	32%	34%	83%

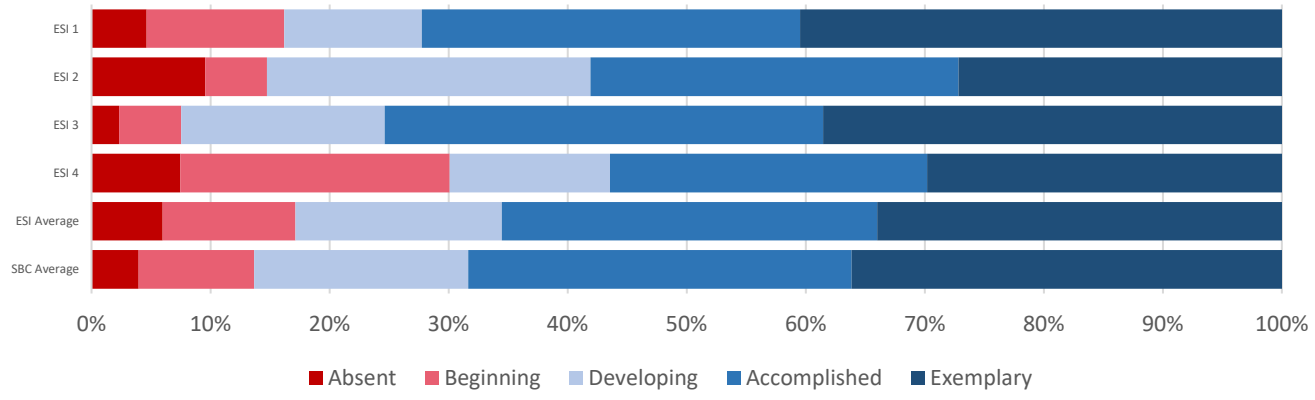


Figure 32. Percent of sample of SBC Learning Outcomes by evaluated level

Indirect measurement: Course Evaluation Survey Results

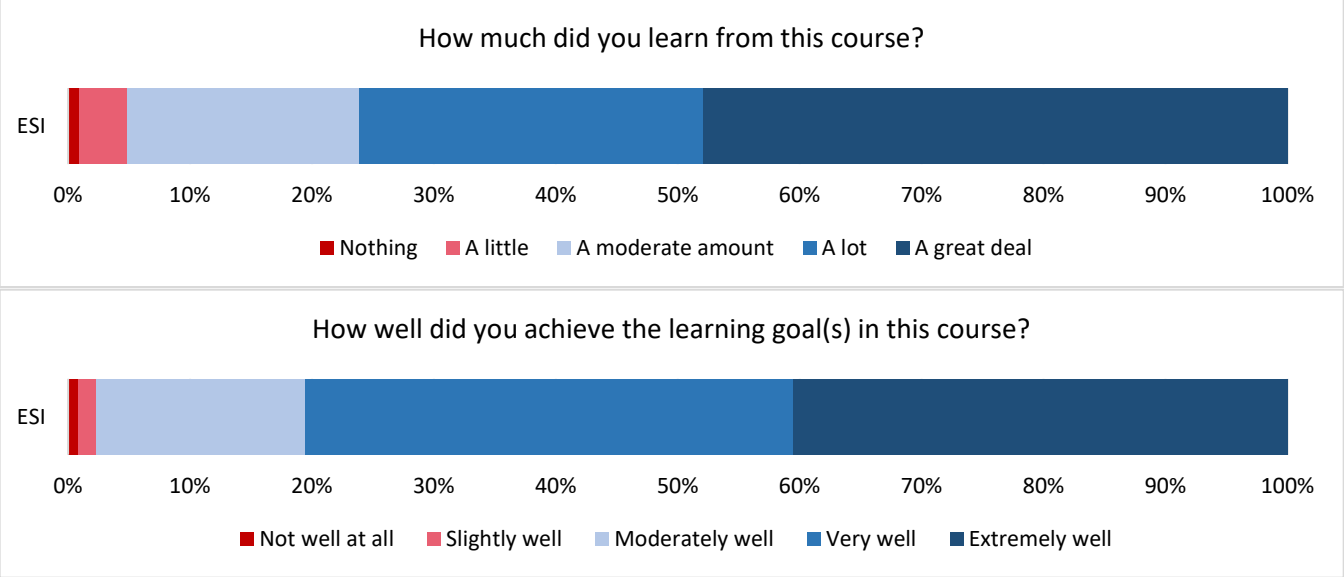


Figure 33. Percent of student participants in course evaluation by SBC

Indirect measurement: Student Opinion Survey

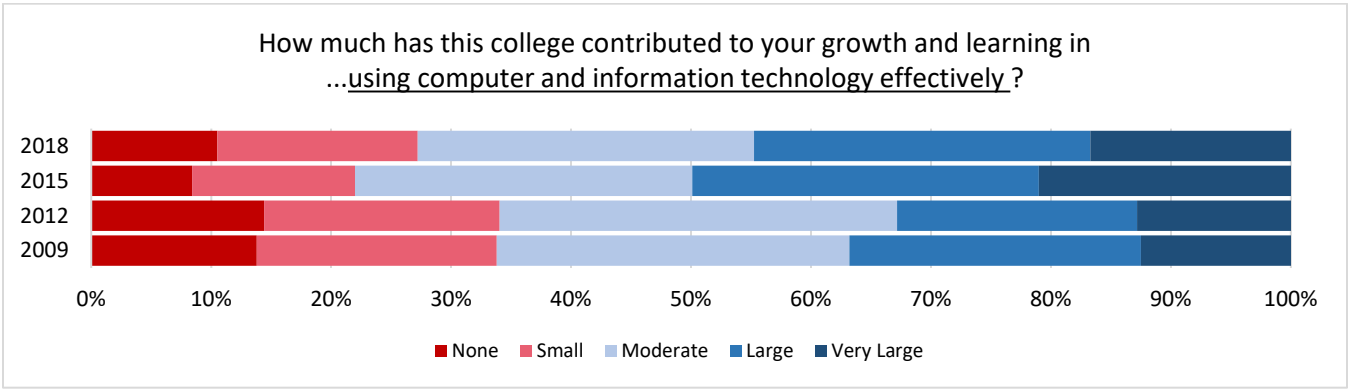


Figure 34. Percent of respondents to SOS item by year

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

1. a) Research a topic, b) develop an oral argument and c) organize supporting details.
2. a) Deliver a proficient and substantial oral presentation for the b) intended audience c) using appropriate media.
3. Evaluate oral presentations of others according to specific criteria.

Standards

1. Courses or modules 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 experiences shall require students to make a substantial and graded oral presentation (e.g., 10-15 minutes) before a group.
3. Certified oral communication experiences shall have students evaluate other students' oral presentations using explicit criteria.
4. A certified experience shall achieve all three learning outcomes.
5. Although most programs will stipulate that the learning outcome will be completed in English, some programs could demonstrate that the requirement could be completed in an alternative language.

Local Results of Pilot Assessment Project

Table 14. Percent of sample by evaluated level

	Students Evaluated	Courses Evaluated	Absent (1)	Beginning (2)	Developing (3)	Accomplished (4)	Exemplary (5)	Developing or Above
SPK 1a	327	7	0%	6%	19%	30%	45%	94%
SPK 1b	315	7	0%	5%	22%	40%	33%	95%
SPK 1c	315	7	0%	6%	21%	34%	39%	94%
SPK 2a	323	7	1%	3%	18%	43%	36%	97%
SPK 2b	323	7	0%	3%	15%	46%	36%	96%
SPK 2c	301	6	0%	2%	12%	36%	50%	98%
SPK 3	291	6	0%	9%	13%	41%	37%	91%
Average	–	–	0%	5%	17%	38%	39%	95%

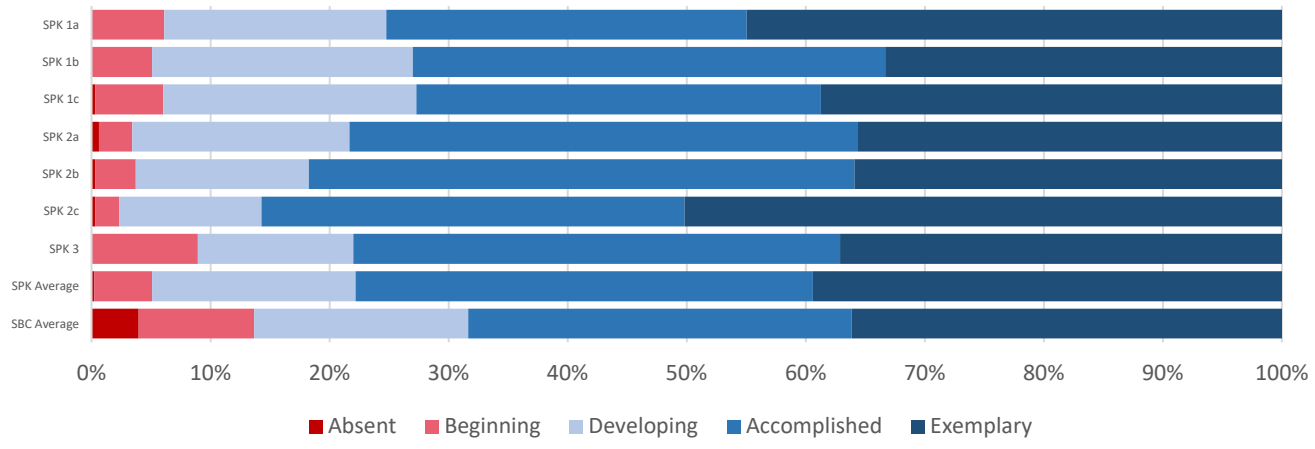


Figure 35. Percent of sample of SBC Learning Outcomes by evaluated level

Indirect measurement: Course Evaluation Survey Results

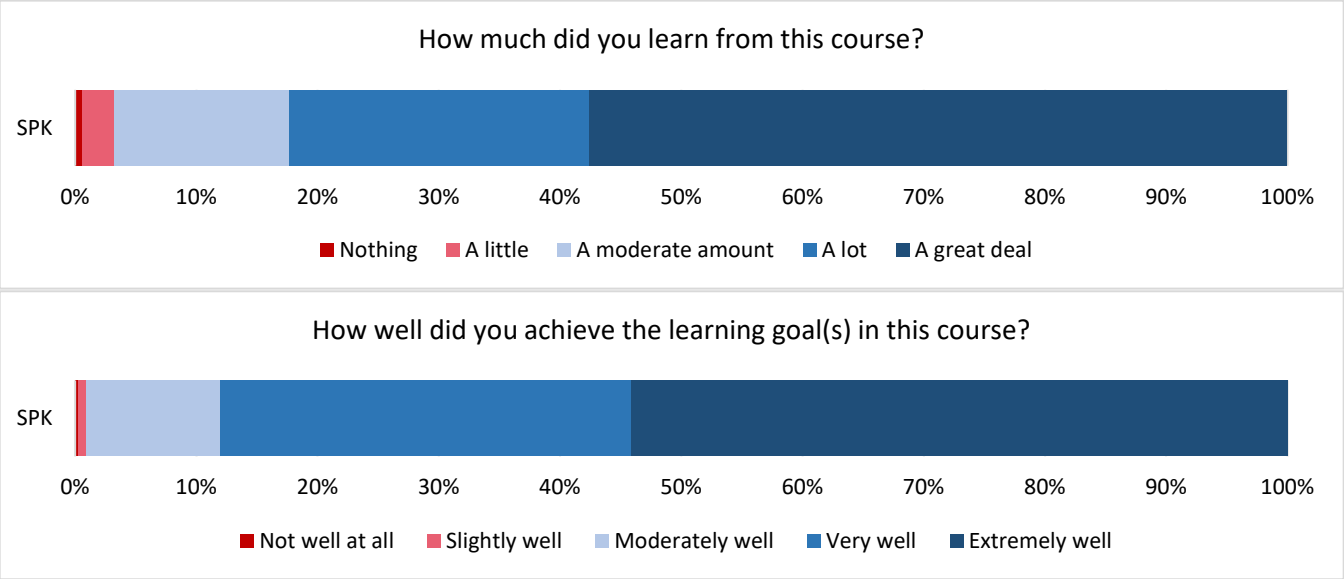


Figure 36. Percent of student participants in course evaluation by SBC

Indirect measurement: National Survey of Student Engagement

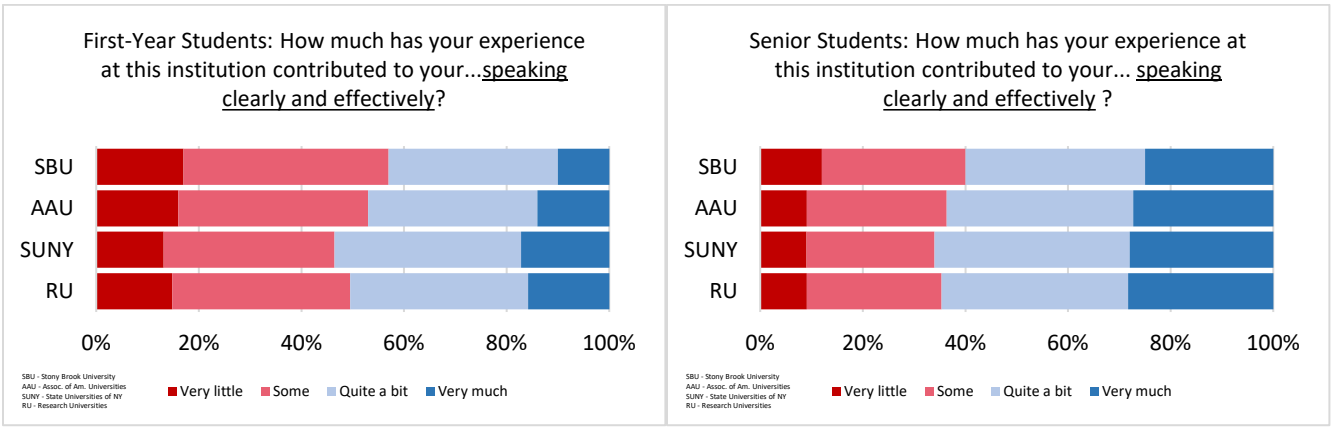


Figure 37. Percent of respondents to NSSE item by school type

Indirect measurement: Student Opinion Survey

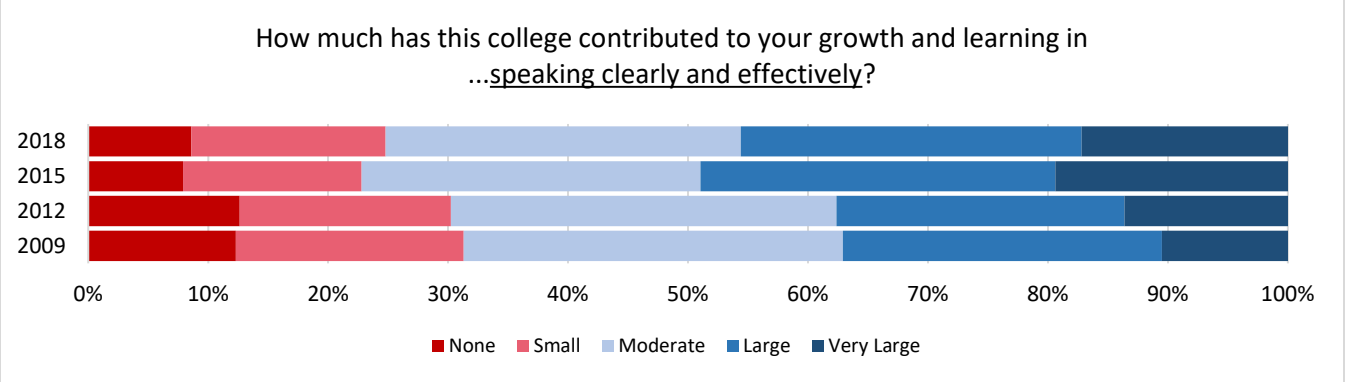


Figure 38. Percent of respondents to SOS item by year

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

1. a) Collect the most pertinent evidence, b) draw appropriate disciplinary inferences, c) organize effectively for one's intended audience, and d) write in a confident voice using correct grammar and punctuation.

Standards

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.
3. Although most programs will stipulate that the learning outcome will be completed in English, some programs could demonstrate that the requirement could be completed in an alternative language.

Local Results of Pilot Assessment Project

Table 15. Percent of sample by evaluated level

	Students Evaluated	Courses Evaluated	Absent (1)	Beginning (2)	Developing (3)	Accomplished (4)	Exemplary (5)	Developing or Above
WRTD 1a	151	5	1%	11%	28%	36%	23%	87%
WRTD 1b	152	5	0%	11%	31%	37%	21%	89%
WRTD 1c	151	5	0%	14%	34%	36%	16%	86%
WRTD 1d	150	5	0%	12%	29%	44%	15%	88%
Average	–	–	0%	12%	30%	38%	19%	88%

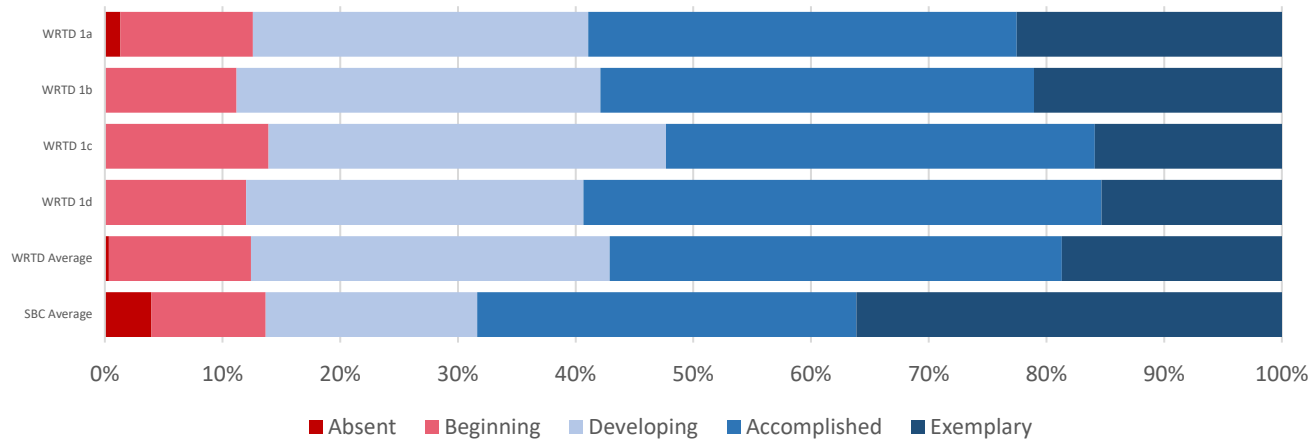


Figure 39. Percent of sample of SBC Learning Outcomes by evaluated level

Indirect measurement: Course Evaluation Survey Results

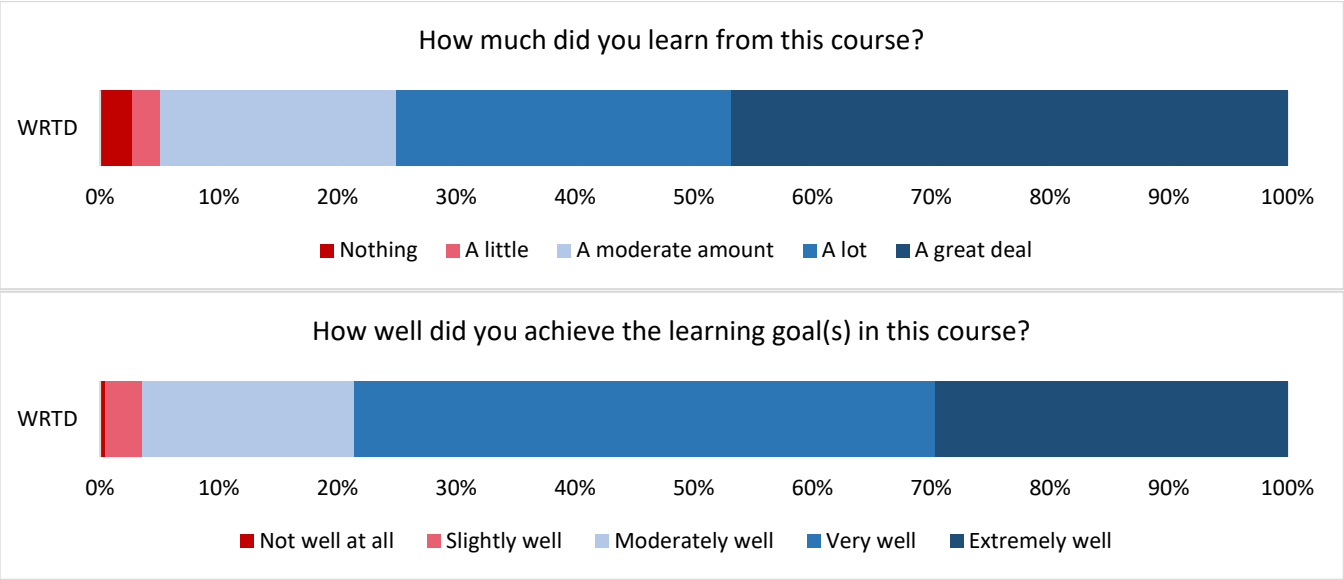


Figure 40. Percent of student participants in course evaluation by SBC

Indirect measurement: National Survey of Student Engagement

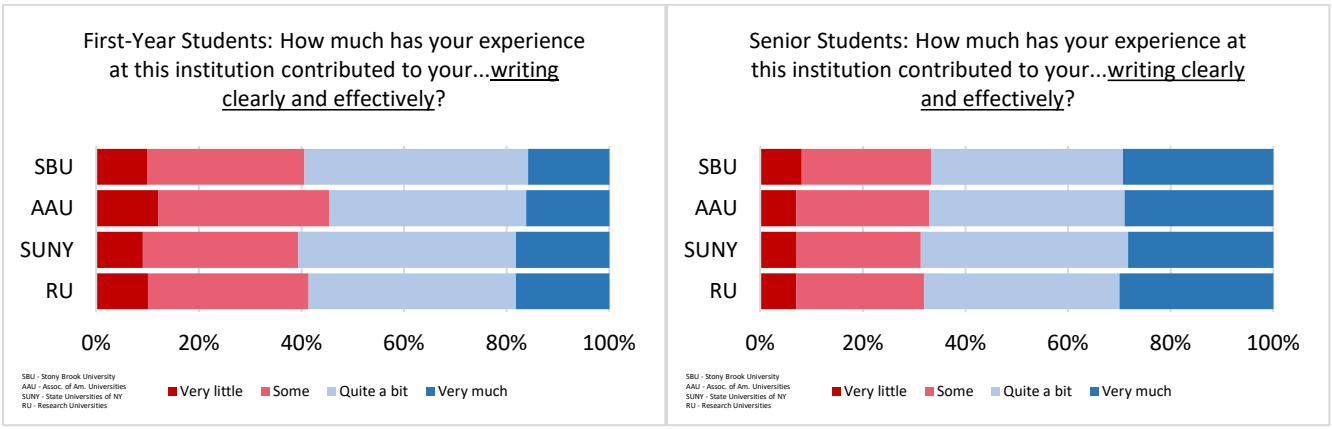


Figure 41. Percent of respondents to NSSE item by school type

Appendix

Sampling, Margins of Error, and Selection Weights

Prior to data collection, we utilized sample weights to analyze normalized percentages and to explore reliable inference from the sample to the target population of students within each SBC. We conducted this analysis exclusively to better qualify uncertainty bounds and selection bias. We did not manipulate or alter previously presented results based on these analyses.

Table 16. Unit record counts and estimated errors

SBC	Total Students Estimated to be Evaluated in Enrollment within SBC	# of Records Estimated to be Evaluated in Sample	Total Courses within SBC	# of Courses Selected in Sample	+/- error based on # of Students Sampled	Column % of Enrolled	Column % of Sampled	% Difference of Sample	Selection weight
ARTS	3521	391	118	5	4.67%	6.18%	4.24%	-1.94%	1.46
CER	2918	298	85	7	5.38%	5.12%	3.23%	-1.89%	1.58
ESI	3767	357	104	6	4.94%	6.61%	3.87%	-2.74%	1.71
GLO	3037	479	83	4	4.11%	5.33%	5.20%	-0.13%	1.03
HUM	2707	423	86	6	4.38%	4.75%	4.59%	-0.16%	1.04
LANG	2498	141	110	6	8.02%	4.38%	1.53%	-2.85%	2.87
QPS	5710	967	106	8	2.87%	10.02%	10.49%	0.47%	0.96
SBS	5883	1103	87	5	2.66%	10.33%	11.96%	1.64%	0.86
SNW	9957	2021	170	7	1.95%	17.48%	21.92%	4.44%	0.80
SPK	2232	362	118	7	4.72%	3.92%	3.93%	0.01%	1.00
STAS	4393	1058	59	5	2.63%	7.71%	11.48%	3.76%	0.67
TECH	4538	990	111	7	2.75%	7.96%	10.74%	2.77%	0.74
USA	2399	335	45	7	4.97%	4.21%	3.63%	-0.58%	1.16
WRT	1330	132	61	6	8.10%	2.33%	1.43%	-0.90%	1.63
WRTD	2087	163	89	5	7.37%	3.66%	1.77%	-1.89%	2.07
Grand Total	56977	9220	1432	91	--	100.00%	100.00%	0.00%	1.00

2017-2018 Course Evaluation Survey Results by SBC

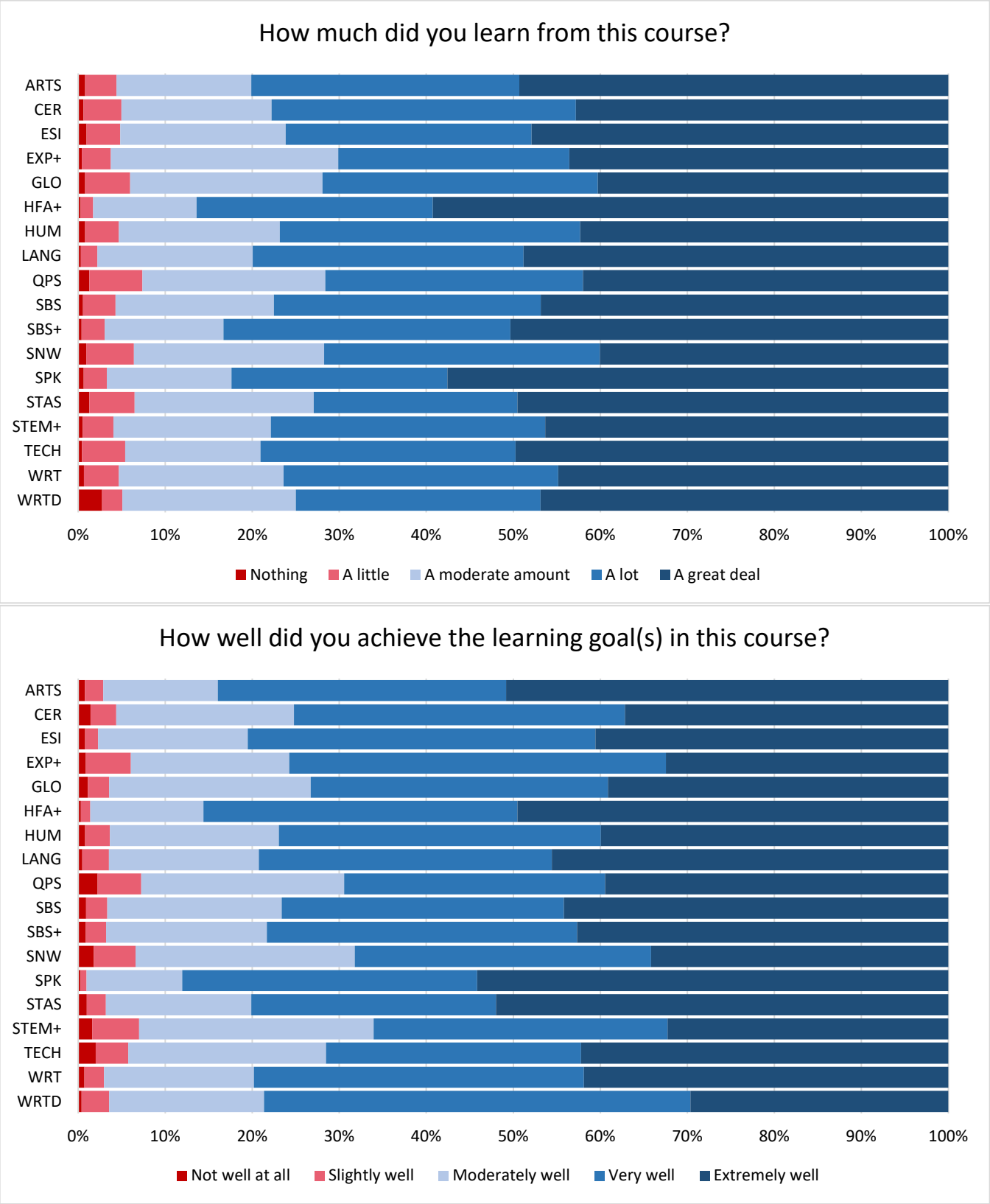


Figure 42. Percent of student participants in course evaluation by SBC

Summary Aggregated Results by SBC

Table 17. Cumulative average percent of measures' midpoints and above by SBC

SBC	Direct measures by faculty (developing or above)	NSSE First-Year Students (quite a bit to very much)	NSSE Senior Students (quite a bit to very much)	SOS 1 (2018 – moderate to very large amount)	SOS 2 (2015 – occasionally to very frequently)	Course Evaluations 1 (moderate to great deal)	Course Evaluations 2 (moderate to extremely well)
ARTS	86%					96%	97%
CER	87%			87%	96%	95%	96%
ESI	83%			73%		95%	98%
GLO	74%	62%	59%			94%	96%
HUM	78%					95%	96%
LANG	95%					98%	96%
QPS	88%	58%	66%			93%	93%
SBS	77%			64%		96%	97%
SNW	70%					94%	93%
SPK	94%			75%		97%	99%
STAS	85%					94%	97%
TECH	91%			73%		95%	94%
USA	89%	51%	51%				
WRT	94%			79%		95%	97%
WRTD	88%					95%	96%
SBC Average	86%	58%	64%	75%	96%	94%	95%

Stony Brook Curriculum Assessment Project Committee Membership

Fall 2017-spring 2018

HFA Brooke Belisle (art) Peter Khost (writing) Sarah Jourdain (French) Giuseppe Gazzola (Italian) Fall 2017 Only Ritch Calvin (wgss) Catherine Scott (faculty center) SBC objectives to consider: ARTS, ~~HFA+~~, HUM, LANG, WRT	**SBS** Michael Barnhart (history) Mark Aronoff (Linguistics) Suzanne Velazquez (SSW) Eva Carceles-Poveda (Economics) Peg Christoff (asian and asian-amer) Fall 2017 Only Ahmed Belazi (Student affairs) SBC objectives to consider: GLO, SBS, ~~SBS+~~, USA
STEM Alan Tucker (AMS) Dale Drueckhammer (Chemistry) Ross Nehm (E/E) Bob McCarthy (Physics) Thomas Graf (Linguistics) Davinder Kaur (SPD) SBC objectives to consider: QPS, SNW, STAS, ~~STEM+~~, TECH	**LLL** Leo Bachmair (Computer Science) Marvin O'Neal (UG Biology) Robert Kaplan (writing and rhetoric) Debbie Zelizer (SHTM) Renee Fabus (SHTM) Kristin Hall (library) Amy Milligan (CoB) SBC objectives to consider: CER, ESI, ~~EXP+~~, SPK, WRTD
SBC Implementation Group Charlie Robbins (Vice Provost) Dave Ferguson (Technology and Society) Brenda Anderson (Psychology) Susan Scheckel (English) Scott Sutherland (Math, on sabb F'17) Kane Gillespie (Office of Academic Assessment)	

Timeline

1. September 2017: Draft the Assessment Plan, with appropriate input from stakeholders.
2. October 11, 2017: Lunch meeting for academic assessment coordinators and other groups to introduce and discuss the process.
3. October/November: Additional meetings with each committees (HFA, STEM, SBS, and LLL) to review/revise outcomes and to develop rubrics and measurement tools for each outcome.
4. October/November: Develop rubrics for each SBC category
5. October November: Meet iteratively with working groups to select courses, design measurement tools and methods to collect data.
6. November/December: Select courses to assess from the Spring 2018 offerings and distribute list to departments
7. January: Workshops and Q&A sessions. Begin work with individual faculty to design individual course assessment plans or translation rubrics, adapt SBC rubrics and instruments as needed.
8. By the first day of classes for spring 2018 (at the latest): Individual course faculty provide a course-specific evaluation rubric for the specified SBC objective (via online form), a syllabus (via Bb), and at least a description (if not an example) of the Spring 2018 class activity that the faculty will use to evaluate student achievement.
9. February-May: Continue iterative meetings among OAA, committee members, assessment coordinators, and instructors to discuss active evaluation. Workshops and Q&A sessions as needed.
10. May: Collect data, and examples of student performance associated with each course and level of achievement.
11. June: Compile and analyze data; discuss findings and actions with the working groups
12. Summer 2018: Draft report
13. Fall 2018: Solicit input from faculty committees, working groups and course faculty.
14. December 2018: Presentation to the Provost. Publish final report on our website.

To establish a set of data and to determine trends and to establish benchmarks, we intend to perform this project every two years: Spring 2018, Spring 2020, Spring 2022, Spring 2024.

Methodology and Course Selection

A multidisciplinary team of faculty in consultation with other experts envisioned and designed this project. The faculty working groups had given much consideration to selecting the fewest number of courses among the over 2000 courses offered in spring 2018. The list includes courses across 40 departments taught by 85 faculty on east, west, and Southampton campuses and across all schools and colleges. The SBC faculty working groups (FWG) and the Office of Academic Assessment (OAA) employed multiple strategies in selecting courses to balance faculty recommendations, convenience, the structure of the curriculum, and statistical considerations. The FWG selected the courses based on their knowledge of the curriculum and on statistical and methodological considerations that the OAA provided. It is important to note that we have included in this project all departments or programs who are offering at least ten SBC certified course sections in Spring 2018.

Since this is the first attempt to broadly assess the SBC, we designed the project as a pilot to maximize the amount of information that can be learned from the process and minimize the impact on resources and scarce faculty time. This "pulse check" enables future iterations to make more informed decisions about course

selection criteria, features of representativeness, interpolation within groupings, and most importantly, the ability to extrapolate inferences to broader populations.

The first pass of course selection leveraged the intuition and content knowledge of the members of the FWG's, who prioritized large courses taught by tenured faculty. On occasion, the committee selected courses taught by full time lecturers or assistant professors in the event that no other options were available. The FWG's also considered departmental impact and other course characteristics such as cross-listed courses, and courses with multiple SBC certifications. OAA then conducted a representativeness check to examine the samples within each SBC category and estimated an average 5% margin of error based on 95% confidence level and maximum comparison variance. OAA also applied a commonly used criterion for general education assessment of 10% of enrollment or greater within each SBC based on Spring 2016 enrollment. Additionally, OAA balanced the selection of courses to minimize overburdening departments and faculty as well as to ensure non-overlapping course selection by SBC.

Notes on course selection:

- We tried to balance the course selection across all departments and schools, and include representative samples from East, West, and Southampton campuses.
- We tried to target tenured faculty. On a few occasions, to get a statistically sound sample size, we selected courses taught by assistant professors, full-time lecturers, and -- in departments where assessment is already expected for local accreditation -- a few adjunct instructors.
- For courses that carry multiple SBC certifications, we expect instructors to only evaluate one *specified* SBC objective. Unfortunately, however, to achieve a statistically sound sample, we cannot allow instructors to choose among the multiple certifications. Instructors can choose to evaluate more than one, but should at least evaluate the specified SBC objective for multiple-certified courses.

The faculty working groups developed the rubrics based on the existing learning outcomes that faculty committees developed between 2009 and 2014. We did not deviate from the published learning outcomes as published in the Undergraduate Bulletin. The faculty working groups developed evaluative criteria on a scale of 1 to 5 for each learning outcome in an effort to refine the definitions of student achievement. Faculty could adapt the rubrics to their individual courses by selecting an "operational verb" from Bloom's taxonomy (as indicated in a list that accompanies each learning outcome on each rubric).

To protect the confidentiality of the data, the generally aggregated data published in this report will only extend to each SBC outcome. We will not report data analysis at the departmental, individual or course level. This report will not include a list of courses, colleges/schools, faculty, or students who participated in the project. The report will indicate, however, which departments participated in evaluating students in each SBC learning objective.

Departments participating in the project by SBC*

SBC	Department	Number of sections
ARTS	Art	1
	Cultural Studies & Comp Lit	1
	Music	2
	Theatre Art	1
CER	Chemistry	1
	European Languages	1
	Journalism	1
	Philosophy	1
	Sustainability Studies	1
	Women's, Gender, and Sexuality Studies	1
ESI	Anthropology	1
	Applied Math and Statistics	1
	Biology Undergraduate Program	1
	English	3
	School of Health Tech and Mgt	1
GLO	Geosciences	1
	History	2
	Political Science	1
HUM	Asian & Asian American Studies	1
	Cultural Studies & Comp Lit	1
	Philosophy	3
LANG	Asian & Asian American Studies	3
	European Languages	2
	Hispanic Languages and Lit	1
QPS	Applied Math and Statistics	1
	Mathematics	3
	Psychology	1
	Sociology	1
SBS	Anthropology	1
	Economics	1
	Linguistics	1
	Psychology	1
	Sociology	1
SNW	Anthropology	1
	Biology Undergraduate Program	1
	Chemistry	1
	Geosciences	1
	Physics and Astronomy	1

* Note: This table represents final counts of participating departments and may differ from previous accounting of sampling, selection, and analyzed groups. That is, although we selected 91 courses for inclusion, faculty actually submitted 86 for the final analysis.

SPK	College of Business	1
	History	2
	Human Evolutionary Biology	1
	Linguistics	1
	Psychology	1
	School of Social Welfare	2
STAS	Biology Undergraduate Program	1
	Materials Sci & Chem Engineer	1
	Physics and Astronomy	2
	School of Marn & Atms Science	1
TECH	Biomedical Engineering	1
	Computer Science	2
	Electrical & Computer Engr	1
	Mechanical Engineering	1
	School of Nursing	1
	Technology and Society	1
USA	Africana Studies	1
	Creative Writing & Literature	1
	English	2
	History	1
	Journalism	1
WRT	Writing Program	6
WRTD	Chemistry	1
	Sociology	2
	Theatre Art	1
	Women's, Gender, and Sexuality Studies	1

Student Survey – Indirect Measurements

In addition to direct and indirect measurements of student performance on general education, we conducted a survey of graduating senior students in Spring 2018 on the subject of the Stony Brook Curriculum. A high-level qualitative summary is included below:

Strengths of the SBC curriculum

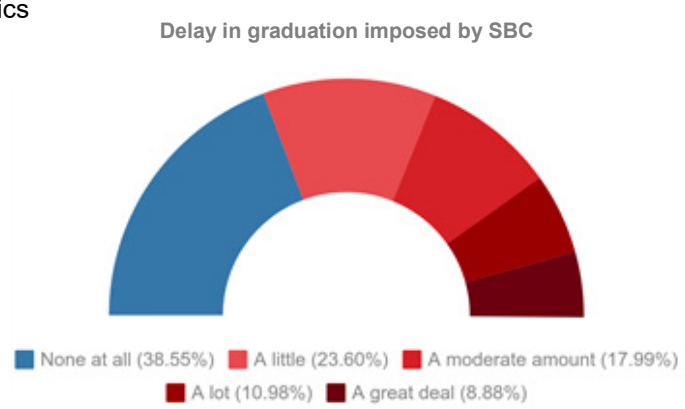
1) Variety of courses and interesting topics
2) Expands knowledge and horizons
3) Exploration outside of the major
4) Expand network of faculty and studer

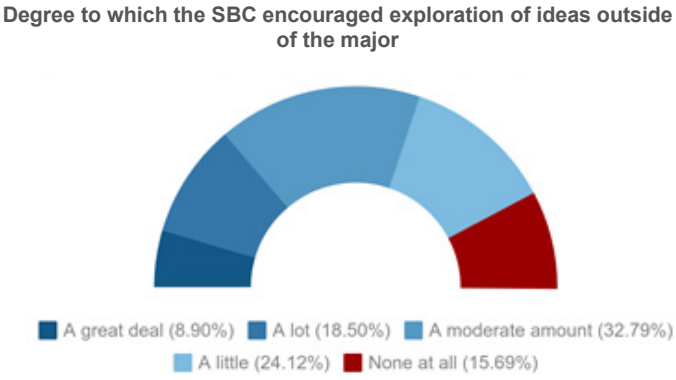
Weaknesses of the SBC curriculum

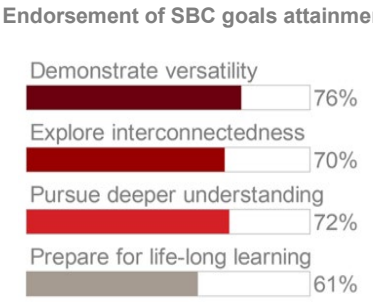
1) Too many requirements
2) Limited course availability
3) Impedes time to graduation
4) Can feel irrelevant to the major

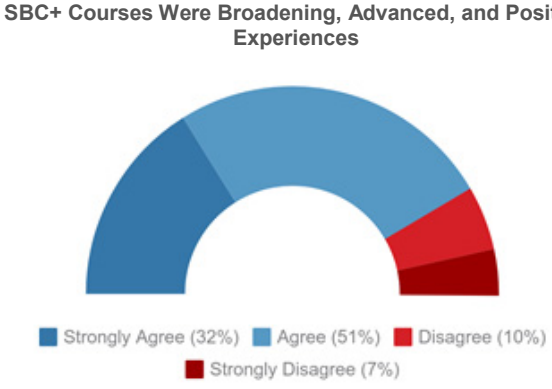
Improvements to the SBC curriculum

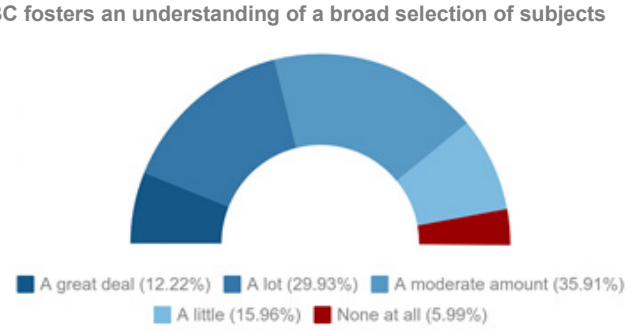
1) Fewer or condensed requirements
2) More choices to fulfill requirements
3) Greater course availability
4) More online options



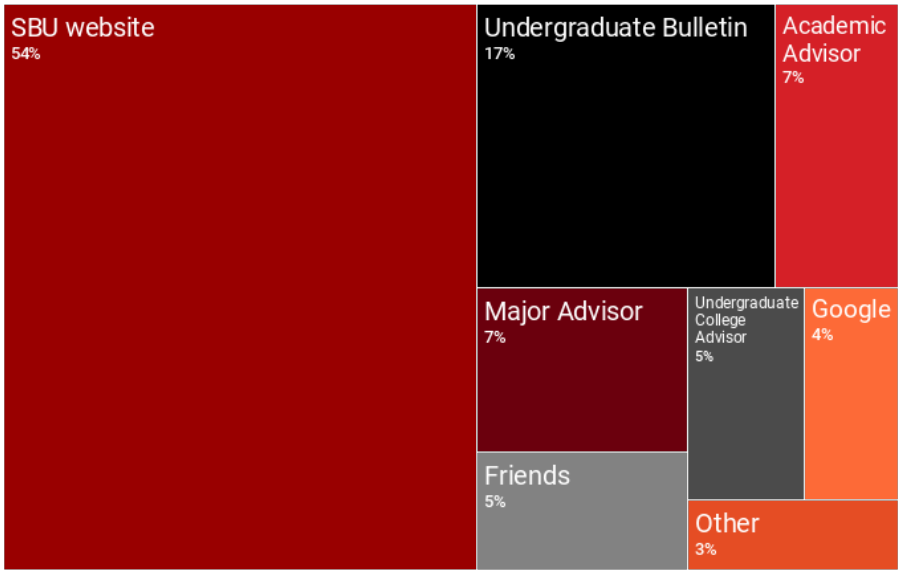




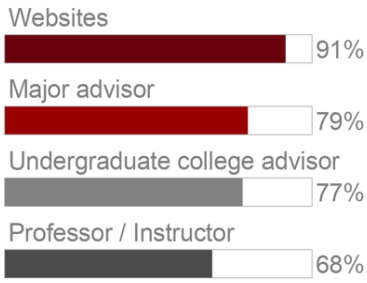




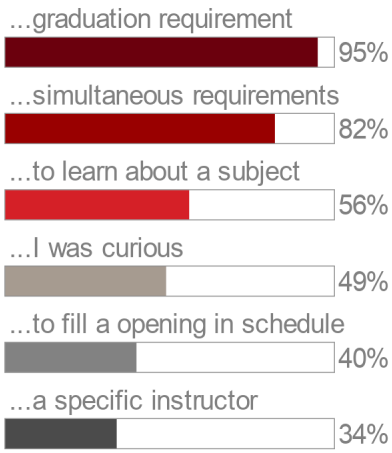
Sources of information about SBC



Perceived helpfulness of advice by source



Reasons for enrollment into an SBC course

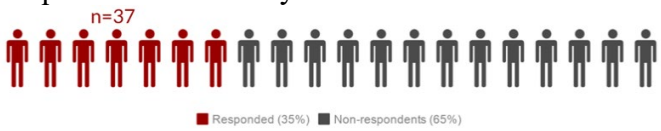


Ranking of factors that influence SBC choices

1) Getting an A grade
2) Meeting time
3) Instructor reputation
4) Course description
5) Meeting location

Faculty and Staff Survey – Indirect Measurements

In addition to direct and indirect measurements of student performance on general education and the survey of graduating senior students in Spring 2018, we surveyed faculty and staff in fall 2018 on the subject of the Stony Brook Curriculum. A high-level qualitative summary is included below:



Strengths of the SBC curriculum

1) Breadth of content
2) Diversity of courses
3) Liberal education
4) Real-world skills

Strengths of the SBC assessment process

1) Broad and engaged faculty representation
2) Collaborative and democratic
3) Comprehensive and thorough
4) Feedback mechanism

Weaknesses of the SBC curriculum

1) Too many students
2) Complexity that hinders navigation
3) Too diffuse for expertise to develop
4) Insufficient breadth of liberal arts

Weaknesses of the SBC assessment process

1) Subjective / non-random variation
2) Interface and user experience
3) Time and labor cost
4) Limited in scope

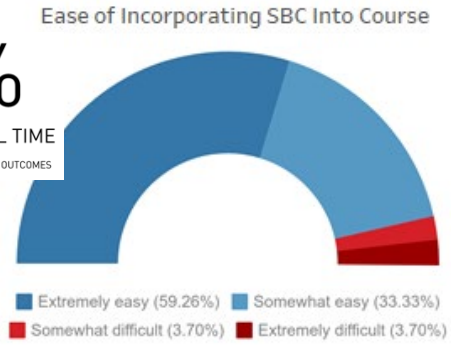
Improvements to the SBC curriculum

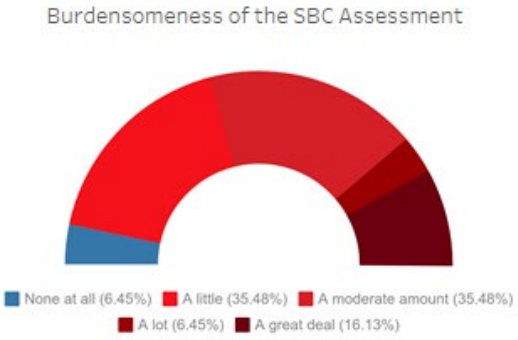
1) Simplification and streamlining
2) Smaller class sizes
3) Emphasis on humanities
4) More courses

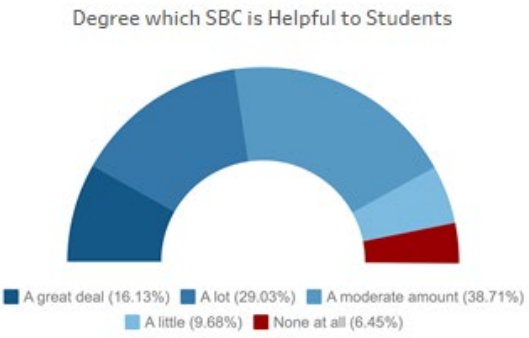
Improvements to the SBC assessment process

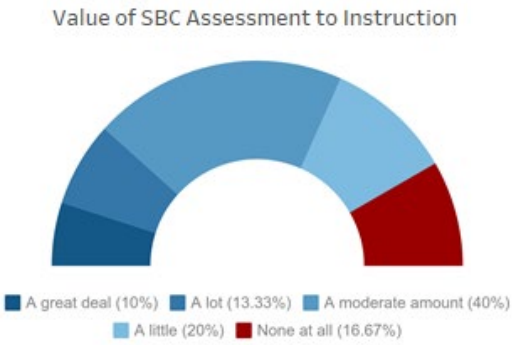
1) Clarify expectations and specify goals
2) More seamless integration / interface
3) Reduce breadth / focus assessment
4) Greater application of qualitative methods

52%
OF INSTRUCTIONAL TIME
IS ON AVERAGE USED TO TEACH SBC OUTCOMES









Observations from Faculty and Staff Survey by SBC

ARTS - Explore and Understand the Fine and Performing Arts

- Need for more upper-level ARTS education and assessment
- Art theory seems to underperform; may have to do with the lack of theoretical thinking

CER - Practice and Respect Critical and Ethical Reasoning

- Smaller class sizes seem to be a strength within this SBC
- Difference in performance between CER 1 and CER 3 is curious as the two intended outcomes are similar

ESI - Evaluate and Synthesize Researched Information

- Knowledge and application seem to be the major differentiator

GLO - Engage Global Issues

- Performance in this category is curious, could be an issue of synthesis of information into a theoretical framework

HUM - Address Problems using Critical Analysis and the Methods of the Humanities

- Theoretical concepts seem to be more challenging here as well

LANG - Communicate in a Human Language Other than English

- Results are good but seem to be strange compared to other SBC's performance
- Could be an issue of measurement standardization

QPS - Master Quantitative Problem Solving

- Potential opportunity for more descriptive (theoretical) learning

SBS - Understand, Observe, and Analyze Human Behavior, the Structure & Functioning of Society

- Could be challenging to students due to the effect of real-world experience

SNW - Study the Natural World

- Could signal issues in scientific thinking that could be due to courses that are too large for optimal learning
- Standardizing assessment across courses and the use of peer reviewed instruments could be another opportunity

SPK - Speak Effectively before an Audience

- Smaller class sizes seem to be a strength within this SBC
- Could be alternatively integrated across all upper division courses

STAS - Science or Technology and the Arts, Humanities, or Social Sciences

- Large class size variation appears to manifest across higher levels of achievement

TECH - Understand Technology

- Minimum or assumed competencies could be applied to reflect the experience that students bring with them

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

- Misaligned objectives
- Knowledge and application seem to be the major differentiator

WRT - Write Effectively in English

- Seems to be doing well but difficult to measure true effectiveness

WRTD - Write Effectively within One's Discipline

- Language barriers could be playing a role

Overall observations

- Seems that the SBC passes the test of its performance
- Students seem to struggle with higher level skills including theoretical/conceptual/quantitative thinking and perhaps the size of courses is too large to change student thinking away from memorization

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Preliminary Observations per SBC Objective

SBC	Observations from direct measurements
ARTS	Developing and above in ARTS2 appears to be 10-20% lower than performance in the other ARTS outcomes. Developing and Above in HUM2 appears to be 10-20% lower than performance in the other HUM outcomes. Is something going on here? Both HUM2 and ARTS2 focus on theoretical concepts.
CER	Of the outcomes, "developing or above" for CER1 appears about 10% lower than the other outcomes. It seems strange that students perform less well in their ability to "distinguish among ethical principles" than to "apply ethical reasoning" or to "understand and differentiate" issues.
ESI	"Developing or above" for ESI 4 is 15-20% lower than the others ESI outcomes. "use information ethically and responsibly."
GLO	The standard is not explicit whether a course should satisfy one or both outcomes. It is curious that students do 17 points better at GLO2 (culture outside US) than GLO1 (interconnectedness).
HUM	Developing and above in ARTS2 appears to be 10-20% lower than performance in the other ARTS outcomes. Developing and Above in HUM2 appears to be 10-20% lower than performance in the other HUM outcomes. Is something going on here? Both HUM2 and ARTS2 focus on theoretical concepts.
LANG	The sample size is very small, but it is striking how high all evaluative scores are. It is also interesting students appear to do better in "speak" (LANG1d) than in "reading" (LANG1b) and "writing" (LANG1a). Is that what Language faculty would expect? We also found in a separate analysis that the GPAs of students in this group were unrepresentatively high. Not sure what is going on here or if there is anything to be concerned about.
QPS	All measurements seem similar, which might add validity to the accuracy. There were many NULL values in the rubric data, suggesting there could be an opportunity to improve the evaluation tool or method.
SBS	Contrary to HUM and ARTS, students did the best in "theory" SBS3.
SNW	Relatively few courses in this sample deliver SNW4 (making informed decisions); Students perform less well in SNW2 (theory), consistent with ARTS2 and HUM2.
SPK	The results show that students perform very well in SPK.
STAS	The results for each STAS outcome are very similar. Incidentally, participating faculty reported difficulty in discerning the difference in the two outcomes
TECH	The results for each TECH outcome are very similar.
USA	The result for each USA outcome are very consistent.
WRT	The sample size is relatively small. There are very few Fs or low GPAs among the students in the sample. Is this a concern?
WRTD	The sample size for WRTD is relatively small.

Overall Recommendations (Summary)

1. Curriculum and delivery
    a. Refine or clarify learning outcomes for a few SBC learning objectives (GLO, TECH, STAS, ARTS, SPK, WRT)
    b. Encourage faculty to consider the findings on student evaluations in "theory" learning outcomes among HUM2, ARTS2, SNW2, SBS3
    c. Communicate "career" relevance: numeracy and analysis (QPS, ESI, SNW), Technology (TECH), ability to express oneself (WRT, WRTD, SPK), teamwork (EXP+), and critical thinking (HUM, WRT, SPK, CER, STAS)
    d. Reinforce the policy that individual course syllabuses should include SBC learning outcomes for that course
    e. Form "communities of practice" for each SBC category for faculty to identify and share experiences and advice
2. Curriculum logistics
    a. Improve overall course seat availability.
    b. Review communication with students
        i. Review the bulletin to ensure that SBC requirements (and related info) are unambiguous
        ii. Study zero credit courses numbered 458 (SPK) and 459 (WRTD)
3. Assessment / process
    a. Increase sample sizes for WRT, LANG, WRTD
    b. Standardize elements of the process
        i. Refine existing rubrics for clarity and usability
        ii. Calibrate evaluations
        iii. Define a set of questions per rubric
    c. Refine/ enhance course evaluation capabilities
        i. Include questions specific to individual SBC learning outcomes;
        ii. Improve response rate by offering appropriate incentives to students. [Contentious issue!]
    d. Initiate an alumni survey that addresses both Gen Ed as well as degree program topics
    e. Communication
        i. Start communication with faculty earlier;
        ii. Hold workshops for faculty in the semester before student evaluation occurs
        iii. Identify champions in each SBC area
    f. Repeat the SBC assessment process every two years. Spring 2020, 2022, 2024.
    g. Data collection – see "software"

Overall Recommendations (with supporting Observations)

Curriculum and delivery

a) *Refine or clarify learning outcomes for a few SBC learning objectives (GLO, TECH, STAS, ARTS, SPK, WRT)*

- We recommend rewording a few of the learning outcomes to be clearer to students and faculty:
- GLO: clarify how many standards a certified course must deliver
- TECH: faculty reported that the two existing outcomes were difficult to measure separately. Consider merging the two outcomes into one or rewriting the outcomes to be more distinct.
- STAS: faculty reported that the two existing outcomes were difficult to measure separately. Consider merging the two outcomes into one or rewriting the outcomes to be more distinct.
- ARTS: Consider rewriting the outcomes to be more concise
- SPK and WRT: Recommend subdividing outcomes into each measureable part
- All: review learning outcomes and update operative verbs as appropriate using Bloom's taxonomy

b) *Encourage faculty to consider the findings on student evaluations in "theory" learning outcomes among HUM2, ARTS2, SNW2, SBS3*

- These four learning outcomes focus on "theoretical concepts." Faculty observed that across three of these four learning outcomes (HUM2, ARTS2, and SNW2), students scored lower on average compared to the evaluations in the same objective. For example, evaluations were lower for ARTS2 than in ARTS1, 2 or 4. Although one might expect undergraduates to perform less well on theoretical concepts, it's something for faculty to be aware of without cause for alarm.

c) *Communicate "career" relevance: numeracy and analysis (QPS, ESI, SNW), Technology (TECH), ability to express oneself (WRT, WRTD, SPK), team work (EXP+), and critical thinking (HUM, WRT, SPK, CER, STAS)*

- Student surveys indicate some misunderstanding of the "purpose" of the SBC. The Career Center advised during this project that employers find intrinsic value in general education curricula because of their alignment with "soft" career skills. To better engage students, we recommend efforts to better communicate the alignment of SBC and career skills.

d) *Reinforce the policy that individual course syllabuses should include SBC learning outcomes for that course*

- NYSED policy formally reinforces this recommendation. From an organic perspective, faculty report that both faculty and students engage with the course better if learning outcomes are explicit and reinforced throughout a semester.
- We've been inconsistent since 2014 in what we've told departments regarding SBC learning outcomes, but what we learned through the recent assessment project is that it is important for learning outcomes to be as verbatim as possible* on the syllabuses. Including verbatim outcomes on the syllabus facilitates consistency from class to class and semester to semester, in terms of designing and delivering curriculum & content and in terms of evaluating students. In 2014, we encouraged faculty to modify learning outcomes to be "in the spirit of," but that led to inconsistencies from class to class and semester to semester.
- We recommend an emphasis that SBC is "general education," i.e., it is intended to be a low bar and not to consume the entire class. We encourage instructors where appropriate to go beyond the SBC objectives, both vertically and horizontally. Gen Ed is the minimum for students to *know* about a particular area when they graduate.
- * "verbatim as possible:" SBC outcomes are, by design, "general" so that they can apply to a range of disciplines. One could conclude that they are not meaningful because of their general nature, and could interpret the request to include "verbatim" outcomes as orthogonal to "academic freedom." (This was the rationale behind allowing faculty to reframe the outcomes "in the spirit of.") On the contrary, verbatim outcomes are there for the student, and not to restrict faculty content or styles of instruction. For the recent assessment project, we learned from faculty committees that it is reasonable for faculty to replace the operative verb in each

learning outcome with another verb from the same Bloom's taxonomy cognitive level. That way the outcomes are almost verbatim and facilitate consistency from class to class and semester to semester while allowing academic freedom.

e) *Form "communities of practice" for each SBC category for faculty to identify and share experiences and advice*

- Experience suggests that populations more readily change behaviors if respected peers encourage new behaviors. In the context of higher education, and in support of the charge of the Office of Academic Assessment to foster a "culture of assessment," faculty are more likely to adopt/learn good assessment practices from their department peers.

Curriculum logistics

a) *Improve overall course seat availability.*

- Although there are generally enough courses certified in each category, there are not always enough seats, which impacts choice, scheduling flexibility, and ultimately progress towards graduation.
- Surveyed students report difficulty finding appropriate SBC courses that match their schedule and interests.

b) *Review communication with students*

I. *Review the bulletin to ensure that SBC requirements (and related info) are unambiguous*

- Surveyed students report that their primary source for information about the SBC is the Undergraduate Bulletin. Therefore, we recommend a review to ensure that it is clear in its communication of SBC requirements and related information such as lists of courses that satisfy each SBC requirement, etc.

II. *Study zero credit courses numbered 458 (SPK) and 459 (WRTD)*

- Through discussion with advising and the SBC Implementation Group, we have learned that the zero credit course mechanism that we designed in 2014 is not working as expected. Faculty and students do not understand the mechanism, which could result in inaccurate student records that don't reflect actual SBC progress.

Assessment / process

a) *Increase sample sizes for WRT, LANG, WRTD*

- Sample sizes for WRT, LANG, and WRTD were statistically small. To improve data validity, we recommend an increase in the sample sizes.

b) *Standardize elements of the process*

I. *Refine existing rubrics for clarity and usability*

- A few elements of the rubrics could be more user-friendly and intuitive.
- For the recent assessment project, we learned from faculty committees that it is reasonable for faculty to replace the operative verb in each learning outcome with another verb from the same Bloom's taxonomy cognitive level. However, the process of doing this often led to confusion. We recommend improving this aspect of the rubrics
- We intended the performance level of "absent" to mean that the *skill* was absent. However, instructors could misconstrue this as meaning the *student* was absent from class. We recommend replacing "absent" with another word or phrase such as 'Targeted skills "Not Achieved".'
- Submission of evaluation data for large sections was sometimes cumbersome.

II. *Calibrate evaluations*

- Unfortunately, one of the biggest issues with the data set was the variability in how faculty evaluated students. Some faculty were very generous with grading, whereas others were sparing in giving high scores. As a result, it was difficult to discern if results reflected the student performance or the faculty grading practice. Further, it became difficult to know how student performance reflected how well the curriculum was working.
- Because of the size of the project (86 course sections and >83 faculty among 15 SBC categories), we did not have the bandwidth to perform "calibration" among the evaluations. This process would achieve consensus on what levels of student performance constitute "exemplary" performance of a skill and what levels of performance constitute "developing" performance.

- One suggestion is to calculate an error rate and/or a statistical variable to reflect how generous or sparing an individual faculty member is in assigning scores. A faculty member's final grading history could be used to inform such a variable.

III. Define a set of questions per rubric

- Several faculty suggested that a group of faculty for each SBC objective could develop a "standard" set of questions or problems that faculty could use across a diverse set of courses. These questions would improve consistency in the evaluation of student performance.

c) Refine/ enhance "course evaluation" capabilities

- Due to the low response rate and unrepresentative sample for "course evaluations," it is unclear how meaningful and useful course evaluation results are as an indirect measure. Typically, we lack responses from students other than very high-achieving students and low-achieving students, and for this project, we were unable (due to time and resource constraints) to offer questions to students that were specific to the individual course or SBC learning outcomes. Instead, students responded to "general" questions regarding the SBC, and it is unclear if the students understood the questions.

I. Include questions specific to individual SBC learning outcomes;

- In the future, we recommend a course evaluation process that enables faculty and administrators to implement refined questions specific to a course or general education learning outcome.

II. Improve response rate by offering appropriate incentives to students. [Contentious issue!]

- The response rate to online course evaluations is historically low compared to evaluations when administered on paper. We have no intentions of returning to paper evaluations, but in order for the results of evaluations to be meaningful, we might (again) consider incentives for students to respond. For example, the College of Engineering and Applied Sciences offers tickets to college graduation ceremonies for students who respond to certain surveys. Perhaps we could devise similar incentives.

d) Initiate an alumni survey that addresses both Gen Ed and degree program topics

- Our experience and the literature of best practices suggest that surveys of alumni are extremely valuable in informing the performance of the curriculum. We currently lack a process to survey alumni on curricular issues. Surveying alumni on curricular issues has an added benefit of engaging alumni in ways that encourage future activity and engagement.

e) Communication

I. Start communication with faculty earlier

- Due to the start date of the new Director of Academic Assessment and the time required to develop the project plan, we did not communicate with faculty who were recruited to participate in the evaluation of students in Spring 2018 until December 2017. As a result, some faculty were surprised to hear about the process and therefore were not willing partners in the project.
- We plan to repeat the project in Spring 2020. We recommend selecting courses and communicating with faculty as early in the Fall 2019 semester as possible to give faculty the opportunity to learn about and participate in the process.

II. Hold workshops for faculty in the semester before student evaluation occurs

- To support the process, we recommend identifying activities such as workshops and informal meetings that could serve as opportunities for faculty to learn about the process earlier rather than later. Schedule workshops for late Fall 2019 and early Spring 2020.

III. Identify champions in each SBC area

- Experience suggests that populations more readily change behaviors if respected peers encourage new behaviors. In the context of higher education, and in support of the charge of the Office of Academic Assessment to foster a "culture of assessment," faculty are more likely to adopt/learn good assessment practices from their department peers.

f) Repeat the SBC assessment process every two years. Spring 2020, 2022, 2024.

g) Data collection – acquire or develop a software tool for managing the process and workflow