RUTGERS
NEW BRUNSWICK

2014-15 Core Curriculum Assessment

Rutgers – New Brunswick Core Curriculum
Student Learning Outcomes Assessment Report, 2014-15
This report follows the checklist format of the University Executive Council on Assessment.

Following the 2006 adoption of the "Transformation of Undergraduate Education Task Force Report" recommending the reorganization of undergraduate education and the establishment of the School of Arts and Sciences (SAS), a faculty committee began a year and half of deliberation resulting in an innovative new goal-based Core Curriculum. The combined SAS and professional school-based faculty adopted the Core in the Spring of 2008 to go into effect with students entering in the Fall 2011 and beyond. Undergraduate students matriculating in the School of Arts and Sciences and the New Brunswick Business School, including those planning to complete majors offered by the Edward J Bloustein School of Planning and Public Policy, the School of Communication and Information, the School of Management and Labor Relations, the School of Social Work, the Mason Gross School of the Arts BA programs, and the five-year Graduate School of Education program, participate in the Core Curriculum. These Schools are represented on the Core Requirements Committee (CRC), as is the School of Environmental and Biological Sciences, which as of AY 2015-16 also will require a modified Core Curriculum with several SEBS-specific requirements for its majors[1]. All of these Schools offer courses certified for the Core, as do the SAS departments.[2]

Yes	Learning Goals ❏ Clearly defined ❏ Publicly posted – provide url http://sasoue.rutgers.edu/core/core-learning-goals ❏ Aligned in hierarchy of learning goals ○ University level ○ Decanal Unit level ○ Program/department level ○ Course level
Yes	Course Syllabi/synopsis/expanded description includes appropriate learning goals
Yes	Identifies where or how the goals are met

Under the Core Curriculum, students meet 14 requirements based in 28 learning goals clustered in three areas. The Core is structured to ensure that all students will meet a minimum of 17 learning outcome goals that the faculty have identified as forming the core of a modern liberal arts and sciences education at a leading 21st Century public research university. These goals are publicly posted in multiple places as the goals *themselves* define the Core Curriculum requirements students must meet. The Core is described in a widely-circulated brochure available as a pdf on various web pages [http://sasoue.rutgers.edu/docman-docs/doc_download/24-core-curriculum-brochure]. A summary of the Core goals is available here and in **Appendix A**. Unlike many of our peers whose general education

[1] School of Environmental and Biological Sciences Core Curriculum, adopted 2013-14: https://sebs.rutgers.edu/core/
[2] Through AY 2014-15 students entering as Engineering, Pharmacy, or SEBS students have not been required to complete the Core Curriculum, but the mandatory curriculums at each of these Schools include some courses certified for the Core Curriculum. Hence, every New Brunswick undergraduate takes courses that have been certified for the Core: 01:355:101 Expository Writing; specified mathematics courses; and specified natural science courses. Transfer students are required to take 21st C Challenges courses [21C] and a Writing and Communication with revision course [WCR] at Rutgers NB. UMDNJ legacy schools have not been integrated into the New Brunswick undergraduate program at this time.

requirements are difficult to find on their public web pages, links to the Core goals are prominent on the main SAS Office of Undergraduate Education web page and the Core is highlighted in the scrolling banner on the main SAS undergraduate Office of Academic Services web page. The Core goals, and the courses that satisfy each of these requirements, are on the Academic Services web page and the Core goals are part of the text students see in the Schedule of Classes and Degree Navigator, as they chart their progress toward completing their degrees. As illustrated in **Appendix B[3],** these Core goals are aligned with the University learning goals and they *are* the general education learning goals for the undergraduate programs in each of the Schools listed above. And, as discussed below, each course certified for the Core must include the Core goals on the syllabus. Codes for the Core goal categories are also in the Web Registration system and Course Schedule Planner that students use for registration.

Yes	Assessment Plan, Structure, and Process: Describes the assessment structure and the process by which the assessment plan was developed and shared within the unit ❑ Efficient ❑ Effective ❑ Sustainable ❑ Reviewed annually
Yes	Assessment Tools/Measures ❑ Includes some direct measures ❑ Tools/measures appropriate to goals ❑ Designed to produce reliable results that can be used for program improvement
Yes	Benchmarks/Standards ❑ Describes the process used define standards, targets, and relevant peer and historical comparisons ❑ Articulates appropriately rigorous standards for judging student achievement of learning goals and identifies unacceptable levels of performance for all learning goals

The Core Requirements Committee (CRC) oversees the Core[4]. The CRC is made up of faculty and staff representatives from the various Schools that use the Core and the SAS Dean for the Core Curriculum; there are also three non-voting student representatives. The CRC is staffed by the SAS Assistant Dean for Assessment who collates all assessment reports and provides assessment assistance to faculty and departments. The CRC generally meets every three weeks to review petitions to add courses to the list of those certified for the Core, and otherwise make Core Curriculum policy.

Assessment is an integral part of this Core Curriculum. The Core Requirements Committee requires *all* courses certified for the Core to include a clear statement of the Core goal(s) on the syllabus and a plan for assessing student achievement of the specified Core learning goal(s). These assessment plans are reviewed by the CRC before a course is recommended to the full faculty for certification as meeting any Core Curriculum goal(s).

The primary method of assessment employed in Core courses involves scoring an embedded assignment or exam question(s) using Core goal rubrics the CRC has developed as the preferred "best practice" assessment option. The full process and rubrics are available on the School of Arts and Sciences (SAS) web site at http://sasoue.rutgers.edu/core/core-assessment, and detailed in the *Faculty*

[3] See original document online at http://sas.rutgers.edu/component/docman/doc_download/549-core-sas-a-university-learning-goals-aligned

[4] See page 8 for Core Requirements Committee (CRC) members, AY 2014-15

Guide to Core Certification. All the Core rubrics are available on the SAS webpage; the 21st Century Challenge rubrics are provided in **Appendix C** by way of example.

This is **direct assessment of authentic artifacts of student learning**. The CRC believes that this best balances the demands for efficiency, effectiveness, and sustainability while providing genuinely useful information for continuous improvement right at the point where fruitful change is mostly likely to be made – at the department and instructor level. While other approaches such as nationally normed tests of critical thinking might be more efficient and sustainable, the CRC does not believe they would be as *effective* primarily because the results of those tests would be so far removed from the specific Core goals the faculty have identified (which are specific critical thinking skills) and from the daily practice of undergraduate education -- faculty design, delivery, and refinement of specific courses.

As assessment is built into the structure of Core courses -- generally rubric-based scoring of embedded assignments -- the CRC expects these assessments will be conducted every time that the Core course is offered. The CRC asks departments for complete assessment reports on all Core certified courses at three-year intervals, such that each year the CRC reviews assessment reports from a third of the departments.[5] These assessment reports are intended to:

- compile systematic evidence that students are achieving the Core Curriculum goals;
- identify gaps between the aspirations of the courses and actual student achievement; and
- provide a trigger for modification or department review of the certified courses and their appropriateness for the Core.

After surveying the literature on assessment and best practices at peer institutions, we have benchmarked Core goal outcomes with an expectation that at least two-thirds of students will meet the assessed goal at the satisfactory or better level. *In fact, our faculty members have responded to scores well above this benchmark with reforms designed to improve student learning in Core courses.* The CRC retains an annually-updated catalog of these reforms.

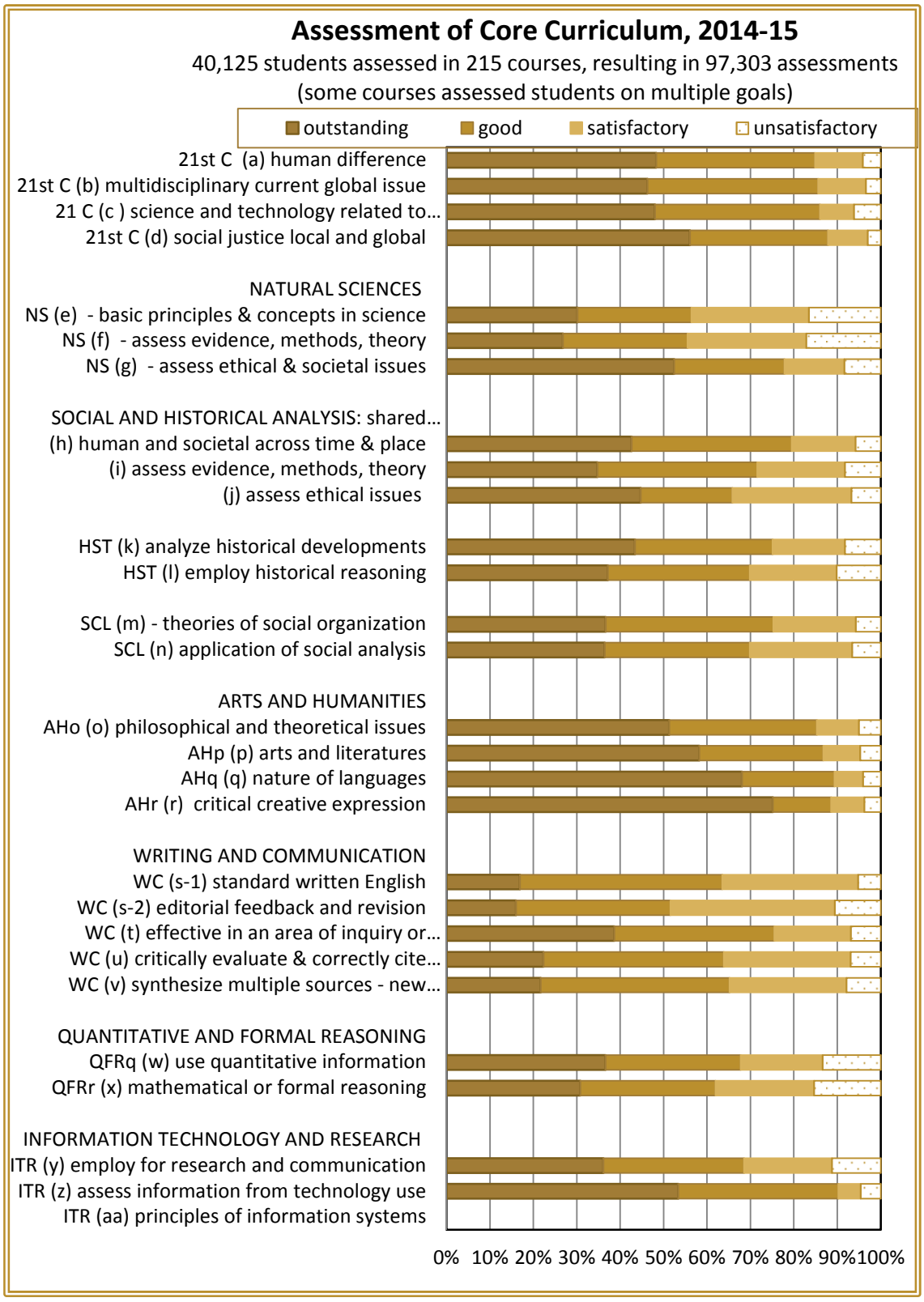
Yes	Assessment Implementation and Results ❑ Conducted and reports on at least one direct assessment measure of at least one of the primary student learning goals; results included in report
Yes	Response to Assessment Results: "Closing the Loop" activities ❑ Describes the process used to review assessment information and use for improvement ❑ Modification/refinement of pedagogy, curriculum, assessment tool, or learning goal based on assessment results. Provides evidence and/or examples of improvements made based on the results of learning outcomes assessment.

Academic year 2014-15 was the fourth year of the Core Curriculum, and saw the graduation of the first class governed by the Core requirements. It was also the first of a new 3-year cycle of learning goals assessment results, in which the reporting departments have been asked to include a substantive analysis of the cumulative assessment results; information about modifications that may have been made to any course based on prior assessments; and observations on changes in student learning outcomes over the reporting cycle. These results add to the already impressive tally for the first full Core assessment cycle, covering academic years 2011-12, 2012-13, and 2013-14. The Core

[5] The CRC also accepts results from any other Core courses not up in the 3-year cycle that wish to report, and some do so every semester. The data from those courses are included with the data from the 3 year reports. Reports are solicited from all the over 50 departments/programs offering Core courses across NB Schools.

Requirements Committee requested reports from 119 of the 349 Core courses offered in Fall 2014 and 143 of the 369 Core courses offered in Spring 2015. For AY 2014-15, we received results from 215 courses (82% response rate) with combined enrollments of approximately 40,125. Many courses are certified for more than one Core goal, giving us a database of 97,303 individual student assessment scores ranging across 27 of the 28 Core goals.

Figure 1: 2014-2015, detail



The results for AY 2014-15 are presented in Figure One. This year, satisfactory level (or better) achievement ranged from the mid-90% range to the low-80% range on some of the natural science goals. It is important to note that the Mathematics department was not required to report this year, but other departments with courses addressing QQ and QR included Statistics, which has reported assessments for almost 3,000 students enrolled its Core courses this reporting cycle.

Departments in the 2014-15 Reporting Cycle included in this data*:*

SAS: American Studies, Anthropology, Biology*, Chemistry & Chemical Biology, Classics, Criminal Justice, Earth & Planetary Sciences, Economics, English Writing Program, Genetics, Geography*, History, Italian*, Jewish Studies, Philosophy*, Political Science*, Psychology*, Sociology, Statistics, Women's & Gender Studies; SAS *Signature* Courses. Reports were also requested from Physics and Astronomy and Comparative Literature; as of July 1, 2015, they have not submitted Core assessment results.

SC&I: Communication & Information*, Journalism & Media*

GSE: Education (undergraduate)*

MGSA: Dance*, Music*

EJBSPPP: Planning & Public Policy, Public Health

SEBS: Environmental Science*, Meteorology*, Nutrition Science*

SMLR: Labor Studies & Employment Relations*

Caution should be used in interpreting the aggregate results from any annual cycle because only a third of the departments participating in the Core are required to report assessment results in a given year. We have now completed our fourth year of the Core assessment reporting cycle. All departments offering Core-certified courses now have implemented at least one round of learning goals assessments, and those asked to report in AY 2014-15 now have substantial information on changes in performance over time on which to base decisions about CTL actions to further improve student learning outcomes. As Figure Two shows, there has been enough variation to indicate that rigorous standards are being imposed, and enough across the board success to suggest that in terms of both instruction and student learning outcomes the Core is quite effective. In many categories over 90% scored satisfactory or better. In no category did the satisfactory results dip below 80%.

The CRC does, however, have concerns that some courses are reported as having over 75% of students achieving goals at the "outstanding" level. The CRC plans to work with departments and instructors to refine assessment instruments and procedures to better distinguish between levels of student outcomes.

Yes	Response to Assessment Results: "Closing the Loop" activities ❏ Describes the process used to review assessment information and use for improvement ❏ Modification/refinement of pedagogy, curriculum, assessment tool, or learning goal based on assessment results. Provides evidence and/or examples of improvements made based on the results of learning outcomes assessment.

As noted earlier, the CRC is very impressed with faculty efforts to "close the loop" even when the assessment results in their courses are above the benchmarks the CRC has set. An extensive range of examples is kept on file with the CRC**.** Clearly, faculty members are engaged in modifications and refinements of pedagogy, course design, and assessment prompts based on Core assessment results.

Figure 2: Cumulative 2011-2015, detail

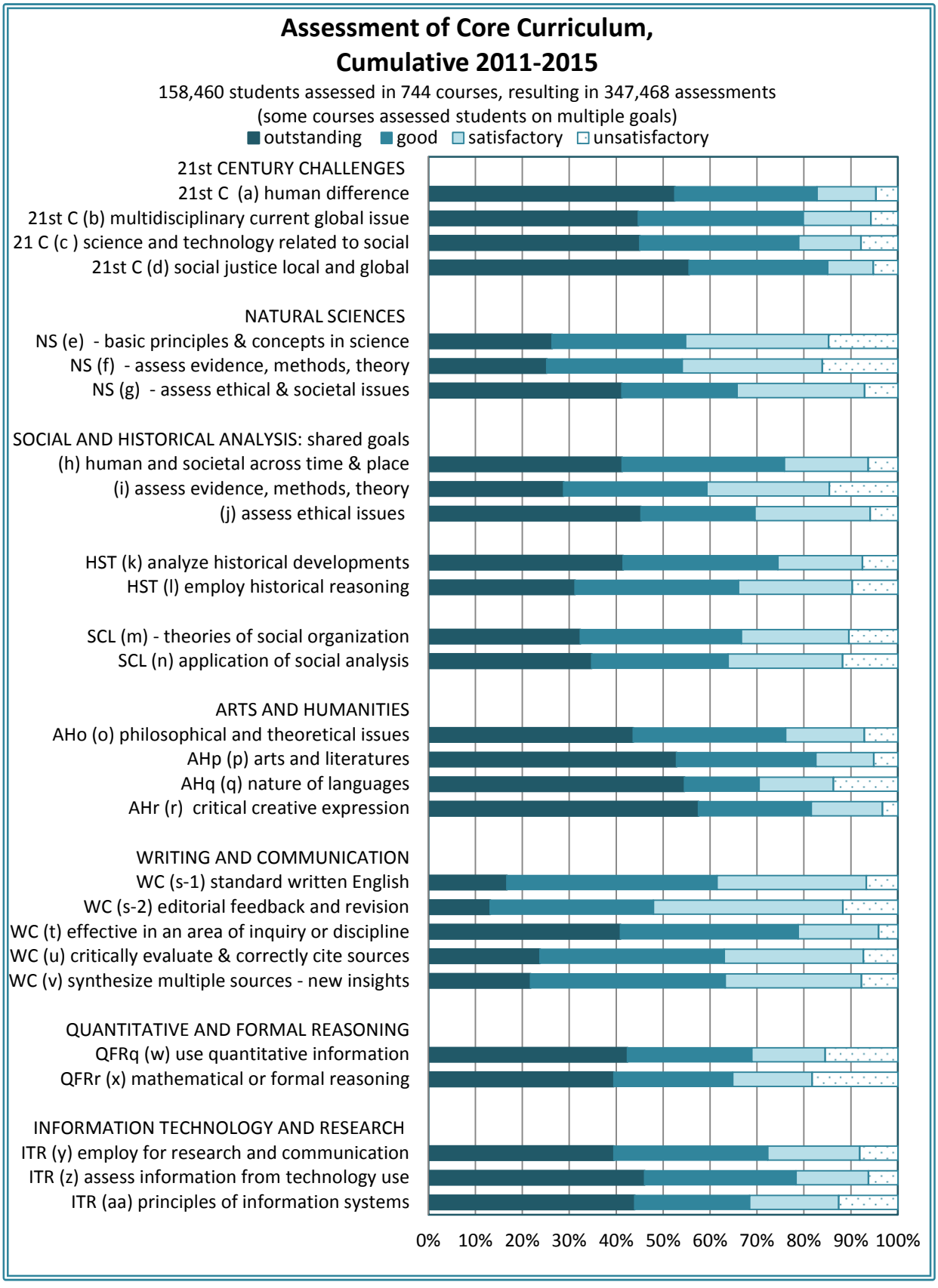


Table 1 presents data on the number of reports submitted from 2011 to 2015 indicating plans to modify courses in response to the Core goals assessment results. Over the entire period, approximately a third of the reports included such plans. Table 2 provides a summary of the types of modifications proposed. The process of assessment has encouraged our faculty to think about ways to improve student learning in their courses. The CRC is concerned, however, by the drop in the percent of courses reporting planned improvements in 2014-15 and plans to emphasize and support "closing the loop" activities.

Table 1: Progress in Creating a Culture of Evidence, Experimentation, and Continuous Improvement

Cycle Year	Assessment Results Requested and Received	Plans to Improve Student Learning Reported		
		Fall	Spring	Year total
2011-12	115	13	13	26 (23%)
2012-13	206	32	36	68 (33%)
2013-14	200	40	49	89 (45%)
2014-15	215	23	36	59 (27%)
Four-Year Totals	736			242 (33%)

The CRC has also been proactive in assessing its own practices. Based on what we learned in 2011-12, and the first round of Core assessment reports, the CRC refined the Core rubrics before AY 2012-13. Almost all were streamlined to improve the faculty's experience with them and increase their comfort in using them for assessment of their students' achievement of the Core goals. Assessment reports received for AY 2012-13, 2013-14 and in the current year show a pattern of more clearly delineated results for different Core goals, across a broad range of assessment prompts. This suggests that the revised rubrics are more effective tools for measuring student performance on the desired learning goal outcomes. In addition, the Dean for the Core Curriculum worked with the University's Office of Instructional Technology to add a rubric option to the grading tools in our online course management system, Sakai. Starting in AY 2013-14 the Core Curriculum rubrics have been included in this tool. The tool is designed to be flexible enough to allow instructors and departments to use it for any rubric they may adopt for assessment of course or departmental/program learning goals. This will both encourage the broad use of assessment rubrics throughout the University curriculum and facilitate the collection of course-level and program-level assessment data.

The CRC has also undertaken extensive analysis of Core Curriculum enrollment patterns, and in October 2014 the Dean for the Core Curriculum presented a report for the faculty addressing a range of issues of concerns raised by the faculty.[6]

The CRC also adopted a formal policy on the revision and/or retirement of courses from the Core Curriculum, to be implemented in consultation with the departments. The criteria for removal of courses from the Core include the failure to meet expectations on assessment and academic standards;

[6] CRC Report to the Executive Dean, October 2014, http://sasoue.rutgers.edu/component/docman/?task=doc_download&gid=483&Itemid=262

infrequency of offering the course(s) over time; and/or a department's determination that the course should no longer be certified in the Core goals. As of AY 2015-16, this policy will be implemented as part of the overall assessment of the Core Curriculum.

Table 2: Summary of Types of Revisions Made in Core Curriculum Courses in Response to Assessment Results, 2011-2015	
Revise / add homework	· Add assignments, often requiring more frequent and regular interaction with the course material · Add more online homework practice with automated responses.
Revise instructors' in-class presentations or topics or readings	· Add more in-class instruction targeted on problematic topic or skill; provide more explicit guidance about what students need to do · Add more multi-media sources to assist with conceptualization of abstract concepts · Introduce more authentic or primary sources · Add video instruction to free up more in-class time · Assign fewer texts and probe them in more depth
Revise in-class activities	· Add or re-structure peer review · Add or re-structure in-class group work · Provide more in-class examples, modeling, and group practice · Introduce i>clickers for real time assessment of student comprehension · Add more of an approach or activity the instructor had previous success with
Revise content	· Rebalance topics, rethink how topics are covered, and introduce more repetition and practice exercises · Add more instruction on critical assessment of sources and synthesis of information · Depart from current disciplinary orthodoxy in pedagogy or texts
Add scaffolding	· Add a re-write requirement or option · Scaffold assignments to guide students through a skill or process step-by-step and build ability along the way · Revise curricular sequencing or add prerequisites
Add metacognition activities	· Add reflective and meta-cognition activities · Provide more in-class opportunities to practice and reflect on the desired skill · Further emphasize Core goal throughout the course
Revise prompts or assessment method	· Reframe exam questions, assignments, and/or assessment prompts to bring them into better alignment with the Core goal · Align prompts, assignments, and expectations across instructors and TAs · Develop department consensus on substantive expectations at different points in the student's progress · Add a portfolio requirement · Use data analytics to identify and reach out to at-risk students.

Yes	Successful Improvement: Provides evidence that "closing the loop" actions result in improved student achievement of goals
n/a	Maintenance/Updating Process ❏ Describe the process used to review and update learning goals ❏ Learning goals are updated, as needed, in light of changes in University, unit, or program mission and strategic plans, advances in disciplinary knowledge, evolution of stakeholder needs, and changes in student preparation and capacity

Notable instances of improvement based on changes adopted in response to previous assessment results were included in the Geography, Philosophy, Chemistry, and Italian AY 2014-15 reports. The Geography Department's report on the Signature Course, *Conservation*, describes the efforts of the instructor over the last couple of years to strengthen the focus on the conservation science unit and documents steady improvement on student achievement of the 21st Century Challenges goal c ("Analyze the relationship that science and technology have to a contemporary social issue"). The Philosophy Department describes gains in student learning in *Introduction to Ethics* resulting from the addition of a new assignment in which students were asked several short answer questions, given feedback and a tentative grade from the instructor, and then allowed to revise their responses. The Chemistry Department made several changes to the course, *Impact of Chemistry*, which led to increased student engagement and success. Particularly effective modifications were the use of I-Clickers for in-class polling, the reduced emphasis on multiple choice testing and complex mathematical calculations, and the use of on-line video demonstrations. The Italian Department describes improved student outcomes in *Italian for Reading Knowledge* after modifying the course syllabus to include more challenging and content-specific readings. These reports are very encouraging, and the CRC expects to see much more data on improvement in student learning outcomes post-'close-the-loop' changes in this new three-year cycle of reporting.

As the Core enters its fifth year, the CRC plans to conduct a systematic evaluation of the curriculum, including a consideration of the updating of learning goals. However, it is important to note that the Core goals were written to allow the specific expectations of student achievement needed to meet the goal to evolve as disciplinary knowledge advances and stakeholder needs change without need to change the language of the goal itself.

The CRC is not unmindful that some think of general education as something to be assessed in totality as students graduate. While we remain committed to the advantages in effectiveness that we believe derive from our authentic, embedded, direct assessment tools, as the Core Curriculum matures and now that we have graduated our first cohort of Core students (in Spring 2015), the CRC will be exploring additional assessment tools that might be used near graduation to get a cumulative picture of student learning. One thought is to explore how the CRC might build on assessments being done in major capstone courses, recognizing that different majors emphasize the further development of different subsets of Core Curriculum goals, along with their discipline or program specific learning goals. Another option might build on the natural overlap between our liberal arts and sciences Core Curriculum goals and the so-called 'soft skills' almost universally sought by employers to develop a direct, authentic, assessment tool that students would also be motivated to use for their own purposes.

Perhaps most important, it is already clear that this ongoing assessment process will insure continued faculty attention to the Core Curriculum and its effectiveness, preventing the ossification of

general education that removed general education from the daily concern of faculty in earlier decades. In fact, the Core continues to provoke lively discussions among faculty.

We are grateful for the role assessment plays in keeping the faculty actively engaged with undergraduate education and we look forward to presenting further progress to the ECA each year. The Core Requirements Committee, in alignment with the University, is committed to promoting and maintaining a genuine culture of improvement through direct faculty involvement in and ownership of assessment of student learning.

Submitted on behalf of the Core Requirements Committee by:

Susan Lawrence
Dean for Educational Initiatives and the Core Curriculum and Associate Professor of Political Science, School of Arts and Sciences

Carolyn Moehling
Associate Dean of Undergraduate Education and Professor of Economics
School of Arts and Sciences

Core Requirements Committee, 2014-15

Chair, Larry Scanlon, English, SAS

Barbara Angeline, Dance/Arts Online, MGSA
Mary Chayko, Undergraduate Interdisciplinary Studies, SC&I
François Cornilliat, French, SAS
Diane DeLauro, Office of Academic Services, SAS
Frances Egan, Philosophy, SAS [*on leave S-2015*]
Martha Haviland, Division of Life Sciences, Genetics, SAS
Susan Lawrence, Dean for Educational Initiatives and the Core Curriculum [*on leave S-2015*]
Thomas Leustek, Associate Dean of Academic Administration, SEBS
Richard Ludescher, Dean of Academic Programs, SEBS
Carolyn Moehling, Associate Dean of Undergraduate Education, SAS *[Spring 2015]*
Gregory Mountain, Earth and Planetary Sciences, SAS
Lenore Neigeborn, Office of Academic Services, SAS
Michelle Neumyer, Assistant Dean, Academic Programs, SEBS *(alternate)*
Thomas Prusa, Economics, SAS
Kathleen Scott, Cell Biology and Neuroscience, SAS
Kurt Spellmeyer, English and Director of the Writing Program, SAS
Sharon Stoerger, Information, Technology, and Informatics, SC&I
Matthew Stone, Computer Science, SAS
Paula Voss, Labor Studies & Employment Relations, SMLR
David Wilder, Psychology, SAS

Student Members:
Justin Lucero, SAS & EJBSPPP, 2016
Rachel Moon, SAS & EJBSPPP, 2015
Saad Shamshair, SAS & EJBSPPP, 2015

Committee Staff:
Karen Dennis, Assistant Dean for Assessment, Office of Undergraduate Education, SAS

Appendix A:
http://sasoue.rutgers.edu/core/core-learning-goals

RUTGERS
School of Arts and Sciences

SAS CORE CURRICULUM

Effective for first year students entering in fall 2011 and beyond and for transfer students entering fall 2012 and beyond.

The innovative SAS Core Curriculum establishes common goals that, along with a major and minor specialization, prepare SAS graduates for successful lives and careers built on a critical understanding of the natural environment, human behavior, and the individual's role in diverse societies. Conversant with multiple intellectual traditions, modes of analysis, and schools of thought and armed with well-developed communication and reasoning skills, SAS graduates are prepared to meet any challenge!

The distinctive SAS Core Curriculum cultivates and nurtures curiosity by emphasizing the process of inquiry and the creation of knowledge through debate, research, and scholarship. The SAS Core Curriculum incorporates SAS students into the research mission of our great university and arms them with the intellectual resources required for excellence in meeting the rapidly transforming challenges of the 21st century.

The SAS Core Curriculum is based on the **learning goals** that form the core of a modern liberal arts education at a leading 21st century public research university *and* that are sought after by graduate programs and employers *across* occupations and professions. The learning goals clearly articulate *what students will be able to do* upon completion of the Core, incorporating the reasons for these requirements right into the requirements themselves. Achievement of these learning outcome goals equips our students not just to get a first job, but to excel in that job, advance in that career, and change careers as the demands of the 21st century continue to evolve. At the same time, these goals push students to examine not just *"what"* they want to be, but more importantly, *"who"* they want to be, by discovering their values, talents, and passions.

The SAS Core Curriculum goals complement and reinforce each other and permeate all of our courses and fields of study. The Core Curriculum provides a solid catalyst for excellence in completing major, minor, and elective credits where the student will develop advanced skill in many of these Core goals. Defined in terms of learning goals, the innovative SAS Core Curriculum is different from the traditional model of general education distribution requirements that students at other schools fulfill by taking introductory courses in a range of majors. Each goal represents a particular type of critical thinking and problem-solving employed across the arts and sciences. Progress in completing the Core is measured not by the number of courses taken, but by the number of goals achieved in courses specially designed to put these goals front and center.

The SAS Core Curriculum begins with four learning goals that bring the diverse and rich intellectual heritage of the liberal arts and sciences to bear on the **21st Century Challenges** SAS graduates will face as global citizens and leaders. Students meet these goals in courses that join multidisciplinary scholarship with the most pressing issues of the day. Many of the new SAS *Signature* Courses – specially designed courses of grand intellectual sweep focused on questions of lasting importance taught by leading SAS scholar-teachers -- meet these goals and bring students and faculty together in communities of common interest and experience.

By emphasizing the ability to critically examine the natural environment, human behavior, and the individual's role in society, the Core learning goals prepare SAS students to be creative problem solvers, strong leaders, and reflective individuals in whatever life path they choose. The Core Curriculum's **Areas of Inquiry** learning goals equip SAS graduates with an understanding of knowledge, research, and the liberal arts and sciences throughout our history right up to tomorrow's cutting edge where our faculty work today. These goals stretch the boundaries of traditional academic disciplines by leading students back to those predisciplinary questions that transcend the artificial division of knowledge into distinct majors and minors.

The SAS Core Curriculum equips SAS students with the **Cognitive Skills and Processes** that are central to life-long learning and participation in the world of ideas and the corridors of power. Through the Core, SAS students hone their writing and communication skills and develop their quantitative and formal reasoning skills. And SAS students delve behind facile assumptions to examine the wide array of modern conduits of information (and misinformation) and their relationship to knowledge in the 21st century information age.

The SAS's exciting new Core Curriculum embodies our belief in and aspirations for our diverse and growing student body and reflects the mission of Rutgers University as a comprehensive public research university for the 21st Century.

RUTGERS
School of Arts and Sciences

The SAS Core Curriculum (ratified 5/08) Summary of Learning Outcomes

The SAS Core Curriculum focuses on the learning goals that form the core of a modern liberal arts education at a leading comprehensive 21st century public research university. Student progress in the Core is measured by the breadth of goals achieved, and a single course can fulfill multiple goals. Students exercise meaningful choice among courses from across disciplines specifically certified as meeting these goals.

Upon completion of the SAS Core Curriculum ***STUDENTS WILL BE ABLE TO:***

21ST CENTURY CHALLENGES (6 credits) *Students must meet 2 goals.* [**21C**]

- a. **Analyze the degree to which forms of human difference shape a person's experiences of and perspectives on the world.**
- b. **Analyze a contemporary global issue from a multidisciplinary perspective.**
- c. **Analyze the relationship that science and technology have to a contemporary social issue.**
- d. **Analyze issues of social justice across local and global contexts.**

AREAS OF INQUIRY

Natural Sciences (6 credits) – each course meets e and (f or g or both). *Students must meet 2 goals.* [**NS**]

- e. **Understand and apply basic principles and concepts in the physical or biological sciences.**
- f. **Explain and be able to assess the relationship among assumptions, method, evidence, arguments, and theory in scientific analysis.**
- g. **Identify and critically assess ethical and societal issues in science.**

Social and Historical Analysis (see HST and SCL below – all courses meet at least one of h, i, & j)

- h. **Understand the bases and development of human and societal endeavors across time and place.**
- i. **Explain and be able to assess the relationship among assumptions, method, evidence, arguments, and theory in social and historical analysis.**
- j. **Identify and critically assess ethical issues in social science and history.**

Historical Analysis (3 credits) - all courses meet one (h, i, j) *Students must meet one (k or l).* [**HST**]

- k. **Explain the development of some aspect of a society or culture over time, including the history of ideas or history of science.**
- l. **Employ historical reasoning to study human endeavors.**

Social Analysis (3 credits) - all courses meet one (h, i, j) *Students must meet one (m or n).* [**SCL**]

- m. **Understand different theories about human culture, social identity, economic entities, political systems, and other forms of social organization.**
- n. **Apply concepts about human and social behavior to particular questions or situations.**

Arts and Humanities (6 credits) *Students must meet two goals.* [**AH**]

- o. **Examine critically philosophical and other theoretical issues concerning the nature of reality, human experience, knowledge, value, and/or cultural production.**
- p. **Analyze arts and/or literatures in themselves and in relation to specific histories, values, languages, cultures, and technologies.**
- q. **Understand the nature of human languages and their speakers.**
- r. **Engage critically in the process of creative expression**

COGNITIVE SKILLS AND PROCESSES]

Writing and Communication - (9 credits: 355:101; one WCr (s2); and one WCd (t) *Students must meet 4 goals.* [**WC** - WC101; WCr; WCd]

- s. **(s1) Communicate complex ideas effectively, in standard written English, to a general audience.**
  (s2) Respond effectively to editorial feedback from peers, instructors, &/or supervisors through successive drafts & revision. [WCr]
- t. **Communicate effectively in modes appropriate to a discipline or area of inquiry.** [WCd]
- u. **Evaluate and critically assess sources and use the conventions of attribution and citation correctly.**
- v. **Analyze and synthesize information and ideas from multiple sources to generate new insights.**

Quantitative and Formal Reasoning (6 credits or 3 plus placement out of 3) *Students must meet 2 goals.* [**QFR** - QFRq; QFRr or placement out of]

- w. **Formulate, evaluate, and communicate conclusions and inferences from quantitative information.** (includes various quantitative methods courses as well as 640 courses) [QQ}
- x. **Apply effective and efficient mathematical or other formal processes to reason and to solve problems.** (includes 640 courses and formal reasoning courses – or placement out of) [QR]

Information Technology and Research (3 credits or equivalent) *Students must meet one goal.* [**ITR**]

- y. **Employ current technologies to access information, to conduct research, and to communicate findings.**
- z. **Analyze and critically assess information from traditional and emergent technologies.**
- aa. **Understand the principles that underlie information systems.**

A SINGLE COURSE MAY BE USED TO MEET MULTIPLE GOALS. ALL COURSES MUST BE CREDIT-BEARING, GRADED COURSES CERTIFIED BY THE SAS FACULTY AS MEETING CORE GOALS. (e.g. E credit courses cannot be used to meet goals, nor can pass/no credit courses.) Generally, students will need to take 10 – 14 courses to complete the Core, some of which may also fulfill major or minor requirements.

Appendix B
Alignment of Core Curriculum Learning Goals with Rutgers University Learning Goals

CORE CURRICULUM	RUTGERS UNIVERSITY LEARNING GOALS											
	Intellectual and Communication Skills					Understanding Human Behavior, Society, and the Natural Environment					Responsiblities of the Individual in Society	
	Critical Thinking	Commun-ications	Mathematical Reasonsing and Analysis	Scientific Inquiry	Informa-tion and Computer Literacy	Historical Understanding	Multi-cultural and International Understanding	Understanding Literary and Artistic Expression	Under-standing the Bases of Individual and Social Behavior	Understanding the Physical and Biological World	Citizenship Education	Social and Ethical Awareness
21st CENTURY CHALLENGES												
a. human differences												
b. multidisciplinary current global issue												
c. science and technology related to social issues												
d. social justice local and global												
NATURAL SCIENCES												
e. basic principles & concepts												
f. assess evidence, methopds, theory												
g. assess ethical & societal issues												
SOCIAL AND HISTORICAL ANALYSIS: shared goals												
h. human and societal across time & place												
i. assess evidence, methods, theory												
j. assess ethical issues												
HISTORICAL ANALYSIS												
k. analyze historical developments												
i. employ historical reasoning												
SOCIAL ANALYSIS												
m. theories of social organization												
n. application of social analysis												
ARTS AND HUMANITIES												
o. philosophical and theoretical issues												
p. arts and literatures												
q. nature of languages												
r. critical creative expression												
WRITING AND COMMUNICATION												
s-1. standard written English												
s-2. editorial feedback and revision												
t. effective in an aread of inquiry or discipline												
u. critically evaluate & correctly cite sources												
v. synthesize multiple sources - new insights												
QUANTITATIVE AND FORMAL REASONING												
w. use quantitative information												
x. mathematical or formal reasoning												
INFORMATION TECHNOLOGY AND RESEARCH												
y. employ for research and communication												
z. assess information from technology use												
aa. principles of information systems												

For legibility, see http://sas.rutgers.edu/component/docman/doc_download/549-core-sas-a-university-learning-goals-aligned

Appendix C
21st Century Challenge Core Curriculum Student Learning Goal Rubrics [REVISED, 2012]
For all Core rubrics, see: http://sasoue.rutgers.edu/core/rubrics-for-core-goals

21st Century Challenges [21C] - Goal a

GOAL a - *Student is able to…* **Analyze the degree to which forms of human difference shape a person's experiences of and perspectives on the world.**			
OUTSTANDING	GOOD	**SATISFACTORY**	UNSATISFACTORY (D/F)
Specifically explicates links between multiple types of human difference and individuals' or groups' experiences of and perspectives on the world. **Evidences a sophisticated understanding** of those differences and their effects on an a 21st century challenge.	**Examines** links between some types of human difference relevant to the course and individuals' or groups' experiences and perspectives on the world. **Demonstrates an understanding** of some effect(s) of those differences on a 21st century challenge.	**Identifies** links between human differences relevant to the course and individuals' or groups' experiences and perspectives on the world, largely through **satisfactory presentation of course materials**. **Demonstrates some understanding** of how some differences affect a 21st century challenge.	**Fails to** link significant forms of human difference relevant to the course to individuals' or groups' experiences of the world and perspectives on the world as relevant to focus of the particular course. **Fails to** delineate the impact of differences on the issues that are central to the course.

21st Century Challenges [21C] - Goal a

GOAL b – *Student is able to…* **Analyze a contemporary global issue from a multidisciplinary perspective.**			
OUTSTANDING	GOOD	**SATISFACTORY**	UNSATISFACTORY (D/F)
Demonstrates a sophisticated understanding in identifying, comparing, and contrasting at least two different disciplinary perspectives as applied to a pressing contemporary global issue. **Critically analyzes and assesses** the advantages/ scope and disadvantages/ limits of each perspective. **Draws original and thoughtful conclusions.**	**Identifies, compares, and contrasts** at least two different disciplinary perspectives as applied to a pressing contemporary global issue. **Notes some** advantages/ scope and disadvantages/ limits of each perspective. **Touches on broader connections and implications.**	**Satisfactorily summarizes** different disciplinary perspectives on a contemporary global issue. **Acknowledges that** each perspective has advantages and disadvantages. **Satisfactorily presents course materials.**	**Fails to** clearly identify disciplinary perspectives any relevant global issues. **Fails to** accurately distinguish between at least two different disciplinary perspectives on the issue. **Fails to** identify and explicate the advantages and disadvantages of each perspective. **Lacks any** critical analysis of any disciplinary approach to the issue.

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21st Century Challenge Core Curriculum Student Learning Goal Rubrics [REVISED, 2012]
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21st Century Challenges [21C] - Goal c

GOAL c - *Student is able to…* **Analyze the relationship that science and technology have to a contemporary social issue.**			
OUTSTANDING	GOOD	**SATISFACTORY**	UNSATISFACTORY (D/F)
Critically analyzes the extent to which science and technology can address a 21st C social issue AND/OR **critically explicates** how the issue is itself is the result of advances in scientific understanding or new technologies. **Thoroughly explores** the challenges and opportunities associated with various ways address the issue. **Demonstrates a high level of scientific literacy beyond that necessary for responsible citizenship and informed life choices.** **Distinguishes between** questions that are fundamentally moral or political and those that are scientific or technological.	**Explains** the extent to which a 21st C social issue can be addressed by science and technology AND/OR **explains** how the issue itself is the result of advances in scientific understanding or new technologies. **Assesses** possible ways to address the issue, with some attention to the complexities or challenges associated with each. **Demonstrates a level of scientific literacy necessary for responsible citizenship and informed life choices.** **Makes some distinctions between** questions that are basically moral or political and those that are scientific or technological.	**Satisfactorily presents** course material on the extent to which a 21st C social issue can be addressed by science and technology AND/OR how the issue itself is the result of advances in scientific understanding or new technologies. **Identifies** possible ways to address the issue, with some appreciation for the complexities or challenges associated with each. **Demonstrates an acceptable level of scientific literacy.**	**Fails to** articulate a link between a 21st C social issue and advances in scientific understanding or the development of new technologies. **Fails to** identify possible solutions or the need for possible solutions. **Major gaps** in scientific literacy. **Fails to distinguish** between scientific, moral, and political judgments. Relies on opinion or assertion instead of analysis.

21st Century Challenges [21C] - Goal d

GOAL d - *Student is able to…* **Analyze issues of social justice across local and global contexts.**			
OUTSTANDING	GOOD	**SATISFACTORY**	UNSATISFACTORY (D/F)
Provides **detailed critical analysis** of what "social justice" means in local and global contexts and offers a critical assessment of existing approaches. Provides a **sophisticated exploration** of the causes of a particular social justice(s) or injustice(s) and the connections to other local and global issues. **Critically and thoughtfully evaluates** ways to advance social justice in the 21st c and identifies who/what would need to change to achieve social justice in a particular context. **Demonstrates original thinking** in assessing the complexities of the effort and potential solutions.	Provides a **robust explanation** of what "social justice" means in local and global contexts. **Explains** the causes of a particular social justice(s) or injustice(s), placing it in local and global contexts. **Demonstrates an understanding** of the goal of advancing social justice in the 21st C and who/what would need to change to achieve social justice in a particular context. **Identifies** resources for and obstacles to change, and alternative solutions.	**Satisfactorily presents** course material on what social justice means in local and global contexts. **Describes** causes of social (in)justice with some attention to local and global contexts. **Touches on** obstacles to and resources for change, and alternative solutions.	**Shows little understanding** of what is meant by social justice and **little or no reflection** on the meaning of social justice or the role context might play. **Minimal and/or unexamined claims** about causation. **Fails to** provide any context for the existing state of affairs, or any coherent discussion of paths to change. **Relies on opinion and polemic.**