



## A Faculty Guide to Submitting Courses for Certification for the SAS Core Curriculum 2018 Edition

**\* Updated to reflect the revision of the Core Curriculum approved by the SAS and Affiliate Faculty in May 2018. The revised Core will go into effect for students entering Fall 2019. All courses submitted to the Core Requirements Committee starting in Fall 2018 will be evaluated according to the revised Core Curriculum.**



The Core Curriculum focuses on the learning goals that form the core of liberal and sciences education at a leading 21st Century public research university. These goals permeate many of our courses and fields of study making fulfillment of Core requirements an integrated part of an undergraduate curriculum that also includes completing major, minor, and elective credits. Progress in completing the Core is measured not by the number of courses taken, but by the goals achieved. Students exercise meaningful choice among courses specifically designed for the Core and introductory level offerings drawn from across disciplines.

The Core Curriculum begins with learning goals that bring the diverse and rich intellectual heritage of the liberal arts and sciences to bear on the **Contemporary Challenges** Rutgers graduates will face as global citizens and leaders. These goals focus on challenges related to **Diversities and Social Inequalities** and **Our Common Future**.

Emphasizing the ability to critically examine the natural environment, human behavior, and the individual's role in society, the Core Curriculum's **Areas of Inquiry** learning goals develop a range of critical thinking skills. These goals stretch the boundaries of traditional academic disciplines by leading students back to those questions that predate the artificial division of knowledge into distinct majors and minors.

The Core Curriculum equips Rutgers students with the **Cognitive Skills and Processes** central to undergraduate studies, life-long learning, and participation in the world of ideas and the corridors of power. Through the Core, students hone their **Writing and Communication** skills and develop their **Quantitative and Formal Reasoning** skills.

A complete faculty guide to the goals follows.



## CORE CURRICULUM: A Faculty Perspective

Courses specifically certified as satisfying the common Core Curriculum Requirements are limited to those that met the Core Requirements Committee’s 5 criteria:

- One or more of the **Core Curriculum goals are front and center** in the design of the course.
- An **assessment plan** is included indicating how aggregate student achievement of the Core goals will be assessed.
- The course is **accessible** to a wide range of students **and** the goals have **not been met by prerequisites**.
- The course, defined by its number (and any cross-listed number), addresses the Core goal **every time** it is offered.
- The course is offered **on a regular and predictable basis**, preferably once a year but at least once every other year.

In the interest of transparency to students, the relevant Core Curriculum goals should be listed clearly on the syllabus. Students can meet up to **two** Core requirements with a single course.

<p><i>notes to faculty regarding courses to be certified as meeting these goals</i></p>	<p style="text-align: center;"><b>ASSESSABLE STUDENT LEARNING OUTCOME GOALS</b></p> <p>Upon completion of the Core Curriculum <b>STUDENTS WILL BE ABLE TO:</b></p> <p><input type="checkbox"/> Red boxes indicate the number of ≥three credit courses student need to take.</p>
	<p><b>Contemporary Challenges</b></p>
<p><i>Syllabi should clearly specify the salience of the course to a clearly identified contemporary challenge</i></p>	<p><b>CCD</b> Diversities and Social Inequalities (3 credits) <i>Students meet one or both goals.</i></p> <p><input type="checkbox"/> <b>CCD-1</b> Analyze the degree to which forms of human differences and stratifications among social groups shape individual and group experiences of, and perspectives on, contemporary issues. Such differences and stratifications may include race, language, religion, ethnicity, country of origin, gender identity, sexual orientation, economic status, abilities, or other social distinctions and their intersections.</p> <p style="padding-left: 40px;"><b>CCD-2</b> Analyze contemporary social justice issues and unbalanced social power systems.</p>
	<p><b>CCO</b> Our Common Future (3 credits) <i>Students meet one or both goals.</i></p> <p><input type="checkbox"/> <b>CCO-1</b> Analyze a contemporary global issue from a multidisciplinary perspective.</p> <p style="padding-left: 40px;"><b>CCO-2</b> Analyze the relationship that science and technology have to a contemporary social issue.</p>



Disciplines do not "own" areas.	Areas of Inquiry
<p>ALL courses in this group MUST meet goal NS-1.</p>	<p><b>NS</b> Natural Sciences (6 credits) <i>Students must meet 2 goals.</i></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>NS-1</b> Understand and apply basic principles and concepts in the physical or biological sciences.</li> <li><input type="checkbox"/> <b>NS-2</b> Explain and be able to assess the relationship among assumptions, method, evidence, arguments, and theory in scientific analysis.</li> </ul>
	<p><b>HST</b> Historical Analysis (3 credits) <i>Students must meet one or both goals.</i></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>HST-1</b> Explain the development of some aspect of a society or culture over time</li> <li><input type="checkbox"/> <b>HST-2</b> Employ historical reasoning to study human endeavors, using appropriate assumptions, evidence, and arguments.</li> </ul>
	<p><b>SCL</b> Social Analysis (3 credits) <i>Students must meet one or both goals.</i></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>SCL-1</b> Understand different theories about human culture, social identity, economic entities, political systems, and other forms of social organization.</li> <li><input type="checkbox"/> <b>SCL-2</b> Employ tools of social scientific reasoning to study particular questions or situations, using appropriate assumptions, methods, evidence, and arguments.</li> </ul>
<p>Consistent with the <b>REPORT OF FOREIGN LANGUAGE ADVISORY COMMITTEE</b> only one or two "late-intermediate" or "early-advanced" courses per language will be certified for <b>AHq</b>.</p>	<p><b>AH</b> Arts and Humanities (6 credits) <i>Students must meet two goals.</i></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>AHo</b> Examine critically philosophical and other theoretical issues concerning the nature of reality, human experience, knowledge, value, and/or cultural production.</li> <li><input type="checkbox"/> <b>AHp</b> Analyze arts and/or literatures in themselves and in relation to specific histories, values, languages, cultures, and technologies.</li> <li><b>AHq</b> Understand the nature of human languages and their speakers.</li> <li><b>AHr</b> Engage critically in the process of creative expression.</li> </ul>



<b>Cognitive Skills and Processes</b>	
<p>All students must take 01:355:101 or its equivalent. Students take two additional courses that include instruction on writing and communication - one that includes revision =WCr; and one that involves communication in the discipline=WCd.</p>	<p>Writing and Communication 3 courses (9 credits including 01:355:101;WCr; and WCd)</p> <ul style="list-style-type: none"> <li> <input type="checkbox"/> <b>WCr</b> Communicate complex ideas effectively, in standard written English, to a general audience, and respond effectively to editorial feedback from peers, instructors, and/or supervisors through successive drafts and revision.         </li> <li> <input type="checkbox"/> </li> <li> <input type="checkbox"/> <b>WCd</b> Communicate effectively in modes appropriate to a discipline or area of inquiry; evaluate and critically assess sources and use the conventions of attribution and citation correctly; and analyze and synthesize information and ideas from multiple sources to generate new insights.         </li> </ul>
<p><b>QQ</b> includes disciplinary specific methods courses.</p> <p><b>QR</b> includes Math courses (e.g. 640:103 and 640:115; or their equivalents) and formal reasoning courses.</p>	<p>Quantitative and Formal Reasoning (6 credits) <i>Students must meet 2 goals.</i></p> <ul style="list-style-type: none"> <li> <input type="checkbox"/> <b>QQ</b> Formulate, evaluate, and communicate conclusions and inferences from quantitative information.         </li> <li> <input type="checkbox"/> <b>QR</b> Apply effective and efficient mathematical or other formal processes to reason and to solve problems.         </li> </ul>



## How are courses certified for inclusion in the Core Curriculum?

Departments submit courses to the Core Requirements Committee (CRC), which is made up of faculty representatives from the New Brunswick schools that require their students to complete the NB Core Curriculum. It is overseen by the Associate Dean of Undergraduate Education, Carolyn Moehling. The CRC reviews the requests for certification in consultation with submitting departments and forwards its recommendations to the SAS and affiliated faculty in a report at the end of each semester. Once this report receives faculty approval, the recommended courses are added to DN and to the online list of courses that meet each goal category. Notations of goal category are also included in the schedule of classes.

Once a new or existing course is certified, it will count toward the Core for all students who have already taken it but not yet graduated, and all students who will take it in the future. But, individual requests for certification of a course by a student or a faculty member will not be entertained; **it is crucial to our students' success that faculty, departments, and advisors not suggest to students that a course will count for the Core unless and until this official certification process is completed.**



## What courses are appropriate for the Core Curriculum?

**The Core focuses on the student's achievement of goals and attainment of capabilities at a foundational level.** By design, the Core Curriculum learning goals track nearly any reasonable articulation of the fundamental goals of a liberal arts and sciences curriculum. Thus, virtually all the courses we offer will, in some measure, advance student achievement of some of these Core goals. But, of course, we don't want to certify every course we offer as meeting Core Curriculum goals; there was very clear faculty agreement that the Core will be more meaningful to students if there are shorter, more focused, lists of courses than we have been accustomed to under distribution requirements.

**Criteria for Certification:** In its implementation of faculty intentions for the new Core, the Core Requirements Committee (CRC) has adopted the following central working principles:

1. **The relevant Core learning goals must be front and center in the course design and highlighted on the first page of the syllabus,** maximizing transparency for students and for the CRC.
2. Courses must include a **plan for assessment of aggregate student achievement of the Core goal(s) and assessment results must be submitted to the Core Requirements Committee.** The issue is not whether the *course* does the activity listed in the learning goal, but rather, are the *students able to do* the cognitive activity identified in the goal upon completion of the course. Further details on assessment are provided below.
3. Courses should be **accessible to a wide range of students,** equipping students as lifelong learners, global citizens, and productive members of society irrespective of their ultimate specialization. Generally, certified courses will be **100 or 200 level courses.** Courses **will not be certified** for the Core **when students will necessarily have already met the proposed Core learning goals by taking the prerequisite courses.**



4. Courses will only be certified when they **address the learning goal(s) every time they are offered** irrespective of instructor, section, semester, or particular topic of focus. “Topics” or “Seminar” courses will only be certified if they include an embedded assessment tool for the Core goal(s) that will be employed in **all sections of the course each time it is offered**. **Cross-listing departments must all agree to certification in the Core and should be consulted with before proposing any course for certification**. For each course number certified for the Core, a generic course synopsis (or full syllabi) that includes the Core Curriculum learning goals that the course has been certified for should be available online through the department web page and the online schedule of classes at all times, updated as necessary.
5. Courses certified for the Core Curriculum must be **offered regularly and on a predictable basis**. We want to encourage students to plan their coursework over several semesters. This requires providing them with reliable information on when Core-certified courses will be offered. **Courses certified for the Core must be offered once every other year on a predictable basis (e.g., Spring every even-numbered year)**. Departments are encouraged to offer Core certified courses every year.

**Online and hybrid courses** must meet all the same criteria. In addition, since the online format is often unfamiliar to those who became faculty members before the digital revolution reached undergraduate instruction, the CRC believes it needs additional information to make informed decisions.

- SAS courses (newly offered online and brand new online courses) must be approved by the SAS Curriculum Committee per its policy on hybrid and online courses. See <http://sasoue.rutgers.edu/> Courses from other schools should be vetted by the offering school’s curriculum committee.
- the request for certification must include CRC access to the online course itself.
- the course should be offered at least once and the assessment results included before it is considered for certification.
- once certified, Core goal assessment reports must be submitted every semester along with some sample assignments used for assessment of the Core learning goals.

In that the Core is largely targeted to traditional first and second year students, the CRC is particularly concerned that this population often lacks the autodidactic skills required for online success and that the online environment may not provide the kind of student engagement that evidence shows promotes retention.

## Assessment Plans

Assessment plans should identify what, when, and how goals will be assessed. The assessment plan must specify the assignment (or set of assignments) that will be used for assessment, describe the benchmarks or rubric that will be used to score student achievement of the Core goal, **AND include representative samples of that assignment – specific exam questions or paper assignments, for instance – that require students to DO the certified Core goal in the context of the particular course material**. When a course is being proposed for multiple Core goals, the assessment plan should describe clearly how each goal will be assessed.

**WHY?** The CRC believes that, in line with emergent best practices nationally and globally (and accreditation requirements), assessment results provide the best evidence that a course is succeeding in



enabling students to meet Core learning goals and the best opportunity for evidence-based improvement of pedagogy. The faculty and the CRC are committed to authentic, minimally invasive, efficient, and valid formative assessment tools suited to our specific learning goals rather than using national standardized tests of “critical thinking” (e.g. the CLA) separated from faculty control of the curriculum.

**HOW? A “best practice” assessment is simply to consistently include an assignment or exam question that asks students to “do” the certified Core goal in the context of the specific course material, and score the assignment using uniform standards or rubrics in each section of the course each semester.**

**The CRC has developed rubrics for each of the Core learning goals.** These rubrics are “generic” in the sense that they are designed at a level of generality that allows them to be used to assess achievement of Core Curriculum goals in many different disciplines and across many different iterations of a course. Other commonly-used assessments tools that can be adapted for use in assessing Core Curriculum goals include pre-tests/post tests and concept maps.

The rubrics are designed with criteria for scoring that provide a substantive definition of each level of achievement, but faculty may also choose to use these definitions as a guide in specifying a percent of **objective test questions** answered correctly for each level of achievement IF the instructor has carefully identified a set of questions that are directly relevant to the certified goal. For example, an instructor may specify that getting 79%-70% correct is “satisfactory.” A [template](#) that allows you to easily tag questions and compile this data using Scantron Excel reports is available on the webpage for the CRC rubrics, at <http://sasoue.rutgers.edu/core/rubrics-for-core-goals>.

**What is a rubric?**

A rubric is a set of scoring criteria used to make scoring transparent and consistent across users. Rubrics are most frequently set up as tables with *criteria or elements* necessary for a successful whole listed on one axis and *level of performance* listed on the other. In a fully developed rubric, the cells are each filled in with descriptions of what is necessary to reach each level of performance on each criteria.



**“But, I already grade my students’ performance!”** Grading (evaluation and rank ordering of individual students) and assessment (documenting the extent to which the group of enrolled students leave the course with the abilities specified in the learning goals) are analytically distinct for the reasons listed in the table below:

<b>ASSESSMENT VERSUS GRADING:</b>	
<i>Assessment of student learning outcome goals is analytically distinct from grading. Assessment is about the extent to which the curriculum/course design successfully achieves the student learning outcome goals; grading is about evaluation, and rank ordering, of individual student performance on an assignment or in a course.</i>	
Assessment and grading can overlap when:	Assessment and Grading (appropriately) diverge when:
assignments or exam questions are directly related to the specified learning outcome goals to be assessed.	assignments represent steps toward the learning goal rather than actual achievement of the learning goal. (ex: homework assignments, reaction papers, etc.)
there is some common standard for evaluating the student work that is transparent and can be used by multiple “graders” --- “objective test” answer keys; substantive rubrics, etc.	for other than “objective” tests, there is not a transparent, multi-user guideline for grading specific pieces of student work – an answer key or rubric.
best practice: multiple evaluators score a single piece of student work on a common rubric – example: committee evaluations of senior theses.	
rubric, or other tool, is general enough to be used in multiple courses, sections, or on multiple assignments over time.	grading criteria focus on the specific material from the specific offering of the course rather than on the broader learning goal(s).
scores are collated into a broad picture of class (rather than individual) achievement of learning goals.	scores are reported individually to students.
	effort, attendance, participation, etc. are counted toward the grade even though they do not directly measure student achievement of the particular learning goal.
	assessment may be done on the work of a carefully selected representative sample of students—but, grading obviously has to be done on the work of each individual student.



**Assessment Reporting:** The CRC will ask departments for **assessment reports on all Core certified courses at 3 year intervals** such that each year the CRC will review assessment reports from a third of the departments. Generally, one should expect at least two-thirds of students to meet the assessed goal at the “satisfactory” level or better. Results below this “benchmark” should trigger some re-evaluation of the pedagogy or the assignments used to assess achievement of the goal. In fact, the CRC has found that most faculty chose to modify courses even when this minimal benchmark is met and the CRC commends them for doing so. **Adjustments should be implemented and all of these “close the loop” changes should be included in the assessment report.**

**Cross-listed courses** should report with the department that typically staffs the course.

The **best practice** is to assess student achievement of the learning goal *every* time the course is offered; however, the CRC only requires a Core report once every three years. Departments are welcome to submit more often.

Core Assessment reports should be submitted on-line at: <https://sakai.rutgers.edu/core/>.

The **purpose** of the assessment reports is three-fold:

- compile systematic evidence that substantiates our claim that students are achieving the Core Curriculum goals;
- alert the instructors and departments if there is some gap between the aspirations of the course and actual student achievement. Departments and instructors may then decide to modify the design of the course to improve achievement of student learning outcome goals and/or re-evaluate the appropriateness and accuracy of the assessment tool = “close the loop,” and;
- provide a trigger for department review of whether the course remains appropriate for the Core. If not, the course number should be changed and the Core Requirements Committee notified. “De-certification” of courses for the Core will proceed only on a consensual basis and will require a vote of the faculty, just as certification does.

## NUTS AND BOLTS: Proposing a Course for Core Certification

- Proposals must be **endorsed by the offering department** and submitted through the **Course & Curriculum Proposal system**, at <https://secure.sas.rutgers.edu/apps/sascc/main>. *Undergraduate Chairs can request or authorize access by emailing Nicole Dallara at [ndallara@sas.rutgers.edu](mailto:ndallara@sas.rutgers.edu).*
- **Review the syllabus:** does the course meet the CRC criteria? *See pg. 2 of the Guide.*
  - Is it clear that the Core goal(s) will consistently be **front and center** in the course design?
  - Have students already achieved the proposed goal(s) in a prerequisite? *The CRC does not certify courses for Core requirements that students already will have satisfied in a prerequisite.*
  - Does the syllabus **include the proposed Core Goal(s) on the first page?** *Please be sure this is the official wording, without alteration: course-specific learning goals on the syllabus can clarify connections to relevant content. Please also be sure that no **published** syllabus lists any Core goals unless and until the certification has been formally approved, to avoid confusing students.*
  - Be prepared to provide the syllabus file in text (Word, RTF, or txt), pdf, or Excel format.
- There must be a **plan for assessing aggregate student achievement of the proposed Core goal(s) each time the course is offered.** Generally, this will include:
  - a representative example of the assignment** - e.g., specific exam questions, or the required components of a research project/paper – that will be used to evaluate whether **students have achieved the desired learning outcomes** for the Core goal(s).
  - a description of the benchmarks or the rubric that will be used to evaluate student achievement of the learning goal(s). (If the instructor plans to use the relevant **CRC rubric(s)**, this should be stated in the assessment plan.)
  - Be prepared to provide the assessment plan in text (Word, RTF, or txt), pdf, or Excel format.
- Proposals must be **agreed to by departments offering cross-listed courses.** *All cross-listed courses will be certified together - and Core-certified courses **may not be temporarily cross-listed** with other courses.*
- Proposals must be **agreed to by departments which offer pre-requisites, or offer courses with which this course might overlap.**
- **Is this an online course?** Special policies apply to certifying Core goals in any online course: *see pg. 6 of the Guide.*

### CRC CRITERIA:

- Front and center
- Assessment plan
- Accessible to wide range of students
- Always addresses learning goals
- Offered regularly



Contemporary Challenges –

CCD: Diversities and Social Inequalities (3 credits) - Students must take **one** course that meets **one or both** goals.

**GOAL CCD-1** - Student is able to... Analyze the degree to which forms of human differences and stratifications among social groups shape individual and group experiences of, and perspectives on, contemporary issues. Such differences and stratifications may include race, language, religion, ethnicity, country of origin, gender identity, sexual orientation, economic status, abilities, or other social distinctions and their intersections.

OUTSTANDING	GOOD	SATISFACTORY	UNSATISFACTORY
<p><b>Specifically explicates</b> how forms of human difference and stratifications among social groups shape individual or group experiences of, and perspectives on, contemporary issues.</p> <p><b>Demonstrates a sophisticated understanding</b> of those differences or social stratifications and their effects on a contemporary challenge.</p>	<p><b>Examines</b> how some types of human difference or social stratification relevant to the course are linked to individual or group experiences of, and perspectives on, contemporary issues.</p> <p><b>Demonstrates an understanding</b> of some effect(s) of those differences or stratifications on a contemporary challenge.</p>	<p><b>Identifies</b> links between a type of human difference or social stratification relevant to the course and individual or group experiences of, and perspectives on, contemporary issues, largely through <b>satisfactory presentation of course materials</b>.</p> <p><b>Demonstrates some understanding</b> of how some differences or social stratifications affect a contemporary challenge.</p>	<p><b>Fails to</b> link significant forms of human difference or social stratification relevant to the course to individual or group experiences of, and perspectives on, contemporary issues as relevant to focus of the particular course.</p> <p><b>Fails to</b> delineate the impact of differences or social stratifications on the issues that are central to the course.</p>



Contemporary Challenges –

CCD: Diversities and Social Inequalities (3 credits) - Students must take **one** course that meets **one or both** goals.

GOAL CCD-2 - Student is able to... Analyze contemporary social justice issues and unbalanced social power systems.			
OUTSTANDING	GOOD	SATISFACTORY	UNSATISFACTORY
<p>Provides <b>detailed critical analysis</b> of what “social justice” means in contemporary contexts and offers a critical assessment of existing approaches.</p> <p>Provides a <b>sophisticated exploration</b> of the causes of one or more unbalanced social power system(s) and their connections to other contemporary issues.</p> <p><b>Critically and thoughtfully evaluates</b> ways to advance social justice in the context of unbalanced social power systems.</p> <p><b>Demonstrates original thinking</b> in identifying resources for and obstacles to change, and alternative solutions.</p>	<p>Provides a <b>robust explanation</b> of what “social justice” means in contemporary contexts.</p> <p><b>Explains</b> the causes of one or more unbalanced social power system(s), placing them in contemporary contexts.</p> <p><b>Demonstrates an understanding</b> of the goal of advancing social justice in the context of unbalanced social power systems and who/what would need to change to achieve social justice in a particular context.</p> <p><b>Identifies</b> resources for and obstacles to change, and alternative solutions.</p>	<p><b>Satisfactorily presents</b> course material on what social justice means in contemporary contexts.</p> <p><b>Describes</b> causes of unbalanced social power system(s) with some attention to contemporary contexts.</p> <p><b>Touches on</b> obstacles to and resources for change, and alternative solutions.</p>	<p><b>Shows little understanding</b> of what is meant by social justice and <b>little or no reflection</b> on the meaning of social justice or the role context might play.</p> <p><b>Minimal and/or unexamined claims</b> about causation.</p> <p><b>Fails to</b> provide any context for the existing state of affairs, or any coherent discussion of paths to change.</p> <p><b>Relies on opinion and polemic.</b></p>



**Contemporary Challenges –**

**CCO: Our Common Future (3 credits) - Students must take *one* course that meets *one or both* goals.**

<b>GOAL CCO-1 – Student is able to... Analyze a contemporary global issue from a multidisciplinary perspective.</b>			
<b>OUTSTANDING</b>	<b>GOOD</b>	<b>SATISFACTORY</b>	<b>UNSATISFACTORY</b>
<p><b>Demonstrates a sophisticated understanding in identifying, comparing, and contrasting</b> at least two different disciplinary perspectives as applied to a pressing contemporary global issue.</p> <p><b>Critically analyzes and assesses</b> the advantages/ scope and disadvantages/ limits of each perspective.</p> <p><b>Draws original and thoughtful conclusions.</b></p>	<p><b>Identifies, compares, and contrasts</b> at least two different disciplinary perspectives as applied to a pressing contemporary global issue.</p> <p><b>Notes some</b> advantages/ scope and disadvantages/ limits of each perspective.</p> <p><b>Touches on broader connections and implications.</b></p>	<p><b>Satisfactorily summarizes</b> different disciplinary perspectives on a contemporary global issue.</p> <p><b>Acknowledges that</b> each perspective has advantages and disadvantages.</p> <p><b>Satisfactorily presents course materials.</b></p>	<p><b>Fails to</b> clearly identify disciplinary perspectives on any relevant global issues.</p> <p><b>Fails to</b> accurately distinguish between at least two different disciplinary perspectives on the issue.</p> <p><b>Fails to</b> identify and explicate the advantages and disadvantages of each perspective.</p> <p><b>Lacks any</b> critical analysis of any disciplinary approach to the issue.</p>



**Contemporary Challenges –**

**CCO: Our Common Future (3 credits) - Students must take *one* course that meets *one or both* goals.**

<b>GOAL CCO-2 - Student is able to... Analyze the relationship that science and technology have to a contemporary social issue.</b>			
<b>OUTSTANDING</b>	<b>GOOD</b>	<b>SATISFACTORY</b>	<b>UNSATISFACTORY</b>
<p><b>Critically analyzes</b> the extent to which science and technology can address a contemporary social issue AND/OR <b>critically explicates</b> how the issue itself is the result of advances in scientific understanding or new technologies.</p> <p><b>Thoroughly explores</b> the challenges and opportunities associated with various ways to address the issue.</p> <p><b>Demonstrates a high level of scientific literacy beyond that necessary for responsible citizenship and informed life choices.</b></p> <p><b>Distinguishes between</b> questions that are fundamentally moral or political and those that are scientific or technological.</p>	<p><b>Explains</b> the extent to which a contemporary social issue can be addressed by science and technology AND/OR <b>explains</b> how the issue itself is the result of advances in scientific understanding or new technologies.</p> <p><b>Assesses</b> possible ways to address the issue, with some attention to the complexities or challenges associated with each.</p> <p><b>Demonstrates a level of scientific literacy necessary for responsible citizenship and informed life choices.</b></p> <p><b>Makes some distinctions between</b> questions that are basically moral or political and those that are scientific or technological.</p>	<p><b>Satisfactorily presents</b> course material on the extent to which a contemporary 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.</p> <p><b>Identifies</b> possible ways to address the issue, with some appreciation for the complexities or challenges associated with each.</p> <p><b>Demonstrates an acceptable level of scientific literacy.</b></p>	<p><b>Fails to</b> articulate a link between a contemporary social issue and advances in scientific understanding or the development of new technologies.</p> <p><b>Fails to</b> identify possible solutions or the need for possible solutions.</p> <p><b>Major gaps</b> in scientific literacy.</p> <p><b>Fails to distinguish</b> between scientific, moral, and political judgments. Relies on opinion or assertion instead of analysis.</p>



**Areas of Inquiry –**

**NS: Natural Sciences (6 credits) - Students must take *two* courses that meet *one or both* of these goals.**

<b>GOAL NS-1 - Student is able to... Understand and apply basic principles and concepts in the physical or biological sciences.</b>			
OUTSTANDING	GOOD	SATISFACTORY	UNSATISFACTORY
<p><b>Fully and clearly explains and applies</b> basic scientific principles <b>with specificity and sophistication.</b></p> <p><b>Provides in-depth description</b> of the scientific method and its distinctive value; <b>critically differentiates</b> it from other approaches.</p>	<p><b>Explains and applies</b> basic scientific principles and concepts <b>fully and clearly.</b></p> <p><b>Fully describes</b> the scientific method and its distinctive value; <b>differentiates</b> it from other approaches.</p>	<p><b>Explains and applies</b> basic scientific principles and concepts <b>fully and clearly.</b></p> <p><b>Fully describes</b> the scientific method and its distinctive value; <b>differentiates</b> it from other approaches.</p>	<p><b>Fails to</b> explain or identify and apply basic scientific principles and concepts.</p> <p><b>Fails to</b> demonstrate an ability to describe the scientific method and its difference from other approaches. Relies on opinion rather than analysis.</p>

<b>GOAL NS-2 - Student is able to... Explain and be able to assess the relationship among assumptions, method, evidence, arguments, and theory in scientific analysis.</b>			
OUTSTANDING	GOOD	SATISFACTORY	UNSATISFACTORY
<p><b>Clearly identifies and explains</b> relationships among assumptions, method, evidence, arguments, and theory in scientific analysis, <b>demonstrating a depth of understanding.</b></p> <p><b>Draws inferences that are consistent with the data; is specific and detailed in support of conclusions.</b> Analysis of outcomes demonstrates superior understanding.</p>	<p><b>Identifies and explains</b> relationships among assumptions, method, evidence, arguments, and theory in scientific analysis.</p> <p><b>Draws inferences that are consistent with the data.</b> Offers an analysis of outcomes that is <b>thorough and without errors that detract from analysis or conclusions.</b></p>	<p><b>Satisfactorily outlines</b> relationships among assumptions, method, evidence, arguments, and theory in scientific analysis.</p> <p><b>Summarizes the purpose and findings of the research.</b> Description of outcomes and/or support is <b>satisfactory.</b></p>	<p><b>Fails to</b> accurately identify and explain relationships among assumptions, method, evidence, arguments, and theory in scientific analysis.</p> <p><b>Does not</b> summarize or interpret the results or purposes of the research. <b>Does not</b> draw conclusions consistent with the data. <b>Inadequate</b> summary of results that involves significant errors.</p>

<i>If using specific objective questions identified for each goal, the instructor may set the benchmarks for each rating as appropriate to the course and the discipline. For example, a typical benchmarking is laid out here:</i>			
90% or more correct	80%-89% correct	70%-79% correct	69% or less correct



**Areas of Inquiry –**

**HST: Historical Analysis (3 credits) - Students must take *one course* that meet *one or both* of these goals.**

<b>GOAL HST-1 - Student is able to... Explain the development of some aspect of a society or culture over time.</b>			
<b>OUTSTANDING</b>	<b>GOOD</b>	<b>SATISFACTORY</b>	<b>UNSATISFACTORY</b>
<p>Presents a <b>sophisticated analysis</b> of the development of a significant aspect – or complex of aspects - of a society or culture over time.</p> <p><b>Makes evidence-based arguments and supports the analysis</b> with relevant facts and theoretical frameworks.</p>	<p>Presents a <b>clear and correct explanation</b> of the development of a significant aspect – or complex of aspects - of a society or culture over time.</p> <p><b>Describes</b> relevant evidence, facts, and theoretical frameworks <b>and draws conclusions</b> based on them.</p>	<p><b>Satisfactorily discusses</b> the development of a significant aspect –or complex of aspects - of a society or culture over time.</p> <p><b>Describes</b> relevant evidence, facts, and theoretical frameworks.</p>	<p><b>Fails to</b> adequately explain the development of an identifiable aspect of a society or culture over time.</p> <p><b>Fails to</b> reference relevant facts, evidence, or theoretical frameworks.</p>



**HST: Historical Analysis (3 credits) - Students must take *one course* that meet *one or both* of these goals.**

<b>GOAL HST-2 - Student is able to... Employ historical reasoning to study human endeavors, using appropriate assumptions, methods, evidence, and arguments.</b>			
OUTSTANDING	GOOD	SATISFACTORY	UNSATISFACTORY
<p>Uses historical reasoning or research methods to present a <b>detailed and thorough analysis</b> of important human endeavors across time and place.</p> <p>Factually accurate and <b>demonstrates a strong understanding</b> of contexts and chronologies. <b>Draws conclusions that are clear, convincing, and original.</b></p> <p><b>Clearly identifies and explains</b> relationships among assumptions, method, evidence, arguments, and theory in historical analysis, <b>demonstrating a clear grasp of the complexities of the issues.</b></p> <p>Demonstrates <b>ability to conduct independent analysis as well as critically analyzed that of other scholars.</b></p>	<p>Uses historical reasoning or research methods to present a <b>clear and correct account</b> of relevant human endeavor(s) across time and place.</p> <p>Factually correct and <b>demonstrates a solid understanding</b> of contexts and chronologies.</p> <p><b>Identifies and explains</b> relationships among assumptions, method, evidence, arguments, and theory in given cases of historical analysis.</p> <p>Demonstrates <b>ability to critically evaluate other scholars' analysis.</b></p>	<p><b>Satisfactorily presents</b> course materials applying historical reasoning or research methods to a human endeavor.</p> <p>Describes central facts correctly and demonstrates an <b>emerging understanding</b> of the importance of contexts and chronologies in historical reasoning.</p> <p><b>Satisfactorily outlines</b> relationships among assumptions, method, evidence, arguments, and theory in historical analysis.</p> <p>Demonstrates <b>ability to make some critical evaluations of other scholars' analysis.</b></p>	<p><b>Fails to</b> successfully apply historical reasoning or research methods to a human endeavor.</p> <p><b>Unaware</b> of relevant facts, contexts, or chronologies.</p> <p><b>Fails to</b> identify relationships among assumptions, method, evidence, arguments, and theory in historical analysis.</p> <p><b>No apparent ability to critically evaluate other scholars' analysis.</b></p>



Areas of Inquiry –

**SCL: Social Analysis (3 credits) - Students must take *one additional course* that meet *one or both* of these goals.**

<b>GOAL SCL-1 - Student is able to... Understand different theories about human culture, social identity, economic entities, political systems, and other forms of social organization.</b>			
<b>OUTSTANDING</b>	<b>GOOD</b>	<b>SATISFACTORY</b>	<b>UNSATISFACTORY</b>
<p>Presents a <b>clear, detailed, and thorough analysis of several different theories</b> about human culture, social identity, economic entities, political systems, or other forms of social organization.</p> <p><b>Compares and critiques</b> theoretical approaches; addresses their respective strengths and weaknesses; and, <b>suggests possible extensions of analysis</b> in new directions.</p>	<p>Presents a <b>clear and correct account of more than one relevant theory</b> about human culture, social identity, economic entities, political systems, or other forms of social organization.</p> <p><b>Identifies</b> strengths and weaknesses of each theoretical approach; and, <b>discusses its application</b> to a particular case.</p>	<p><b>Satisfactorily discusses</b> theories addressed in the course materials about human culture, social identity, economic entities, political systems, or other forms of social organization.</p> <p><b>Identifies</b> different possible theoretical approaches to a particular case.</p>	<p><b>Fails to</b> satisfactorily discuss any theory about human culture, social identity, economic entities, political systems, or other forms of social organization.</p> <p><b>Does not</b> discuss variations in perspective or theory in relation to the subject.</p>



**SCL: Social Analysis (3 credits)** - *Students must take one additional course that meet one or both of these goals.*

<b>GOAL SCL-2 - Student is able to... Employ tools of social scientific reasoning to study particular questions or situations, using appropriate assumptions, methods, evidence, and arguments.</b>			
<b>OUTSTANDING</b>	<b>GOOD</b>	<b>SATISFACTORY</b>	<b>UNSATISFACTORY</b>
<p>Demonstrates an <b>advanced understanding of a range of concepts</b> about human and social behavior <b>and applies them</b> to particular questions or situations <b>with skill</b>.</p> <p><b>Considers</b> the strengths and weaknesses of the concepts applied, <b>and suggests possible extensions of the analysis</b> in new directions.</p> <p><b>Clearly identifies and explains</b> relationships among assumptions, method, evidence, arguments, and theory in social analysis, <b>demonstrating a clear grasp of the complexities of the issues</b>.</p> <p>Demonstrates <b>ability to conduct independent analysis as well as critically analyzed that of other scholars</b>.</p>	<p><b>Clearly explains and applies concepts</b> about human and social behavior in the context of applying them to particular questions or situations.</p> <p><b>Considers</b> the strengths and weaknesses of the concepts applied.</p> <p><b>Identifies and explains</b> relationships among assumptions, method, evidence, arguments, and theory in given cases of social and social analysis.</p> <p>Demonstrates <b>ability to critically evaluate other scholars' analysis</b>.</p>	<p><b>Satisfactorily recounts</b> the application of concepts about human and social behavior presented in the course materials.</p> <p><b>Makes some assessment</b> of the relative strengths of the concepts applied.</p> <p><b>Satisfactorily outlines</b> relationships among assumptions, method, evidence, arguments, and theory in scientific analysis.</p> <p>Demonstrates <b>ability to make some critical evaluations of other scholars' analysis</b>.</p>	<p><b>Fails to</b> describe or apply concepts about human and social behavior to particular questions or situations.</p> <p><b>Fails to</b> identify relationships among assumptions, method, evidence, arguments, and theory in social and social analysis.</p> <p><b>No apparent ability to critically evaluate other scholars' analysis</b>.</p>



**Areas of Inquiry –**

**AH: Arts and Humanities (6 credits) - Students must take *two* courses and meet *two* of these goals.**

<b>GOAL AHo - Student is able to... Examine critically philosophical and other theoretical issues concerning the nature of reality, human experience, knowledge, value, and/or cultural production.</b>			
OUTSTANDING	GOOD	SATISFACTORY	UNSATISFACTORY
Engages in <b>sophisticated critical examination</b> of philosophical and other theoretical issues concerning the nature of reality, human experience, knowledge, value, and/or cultural production central to the course.  <b>Critically analyzes</b> these philosophical or other theoretical issues and <b>assesses the relative merits of each.</b>	Engages in <b>critical reading</b> of philosophical and other theoretical issues concerning the nature of reality, human experience, knowledge, value, and/or cultural production relevant to the course.  <b>Constructs persuasive arguments</b> about these philosophical or other theoretical issues.	<b>Satisfactorily describes</b> philosophical and other theoretical issues concerning the nature of reality, human experience, knowledge, value, and/or cultural production through reliance on course materials.  <b>Draws some critical conclusions</b> about these philosophical or other theoretical issues.	<b>Fails to</b> identify or engage philosophical or other theoretical issues concerning the nature of reality, human experience, knowledge, value, and/or cultural production.  <b>Fails to</b> analyze or critique philosophical or theoretical issues; makes unsubstantiated assertions or substitutes opinion for analysis.

<b>Goal AHp – Student is able to... Analyze arts and/or literatures in themselves and in relation to specific histories, values, languages, cultures, and technologies.</b>			
OUTSTANDING	GOOD	SATISFACTORY	UNSATISFACTORY
Provides a <b>sophisticated analysis</b> of works of art or literature and a <b>critical assessment of the relationship</b> between them and their specific histories, values, languages, cultures, and/or technologies.  Analysis is presented <b>effectively, accurately, and persuasively.</b> Strengths and weaknesses of varying accounts are <b>identified and critically evaluated.</b>	<b>Analyzes</b> the works of art or literature and <b>assesses the relationship</b> between them and their specific histories, values, languages, cultures, and/or technologies.  Analysis is generally presented <b>accurately and persuasively.</b> <b>Attention is given</b> to the merits of alternate analyses.	<b>Satisfactorily presents</b> course material analyzing the works of art or literature and assessing the relationship between them and their specific histories, values, languages, cultures, and/or technologies.  Analysis is <b>satisfactorily supported</b> by course material.	<b>Fails to</b> clearly identify works of art or literature relevant to the course. Does not place the work(s) in a context of their specific histories, values, languages, cultures, and/or technologies.  <b>Analysis is absent.</b> Relies on opinion or makes unsubstantiated assertions.



The **AHq** goal may be met in two distinct families of courses. The criteria relevant to **standard language acquisition courses** at the late-intermediate or early-advanced level are described in the top half of the rubric. The criteria relevant to **courses focused on the subject of language(s)** from a theoretical and historical standpoint are described in the bottom half of the rubric. Courses fulfilling one version of the requirement need not concern themselves with fulfilling the other. In some cases, however, a course may combine elements from both. - Foreign Language Advisory Committee (FLAC), 19 Dec 2011

**GOAL AHq – Student is able to... Understand the nature of human languages and their speakers.**

Student demonstrates an understanding of basic concepts in <b>at least one</b> of the following areas:	OUTSTANDING	GOOD	SATISFACTORY	UNSATISFACTORY
<p><b>standard language acquisition courses</b></p> <p>a. The essential components of language as a communication system</p> <p>b. How meaning is represented and conveyed in language</p> <p>c. The relationship between speech and writing</p>	<p>Demonstrates a <b>full understanding</b> of language as a system; understands meaning as language-specific.</p> <p>Demonstrates a <b>strong grasp</b> of language-specific idiomatic meanings; <b>does not resort to literal translations.</b></p> <p>Shows <b>strong awareness and command</b> of language register, from informal exchanges to formal written communication.</p>	<p>Demonstrates a <b>good sense</b> of the systematic nature of language and of language-based meaning.</p> <p>Demonstrates a <b>good grasp</b> of language-specific idiomatic meanings; <b>usually avoids resorting to literal translations.</b></p> <p>Shows <b>good awareness and command</b> of language register, from informal exchanges to formal communication (written or oral).</p>	<p>Demonstrates <b>satisfactory sense</b> of the nature of language and of language-based meaning.</p> <p>Demonstrates <b>some grasp</b> of language-specific idiomatic meanings.</p> <p>Shows <b>some awareness and command</b> of language register, from informal exchanges to formal communication (written or oral).</p>	<p><b>Does not</b> demonstrate an understanding of the systematic nature of language or language-based meaning.</p> <p>Demonstrates <b>no grasp</b> of language-specific idiomatic meanings; resorts to literal translations.</p> <p>Shows <b>no awareness</b> of language register, from informal exchanges to formal communication (written or oral).</p>
<p><b>courses focused on the subject of language(s)</b></p> <p>d. Linguistic diversity and variation across space and time</p> <p>e. The role of speech and writing in culture, society, communication, and discourse</p>	<p>Demonstrates a <b>strong understanding</b> of the relationship between linguistic meaning and the experience, world view, and culture of speakers and <b>analyzes</b> the role of social, historical, and political contexts in the process of linguistic transformation.</p> <p>Demonstrates <b>strong analytical and observational skills.</b></p>	<p>Demonstrates <b>good understanding</b> of the relationship between linguistic meaning and the experience, world view, and culture of speakers and <b>assesses</b> the role of social, historical, and political contexts in the process of linguistic transformation.</p> <p>Demonstrates <b>good analytical and observational skills.</b></p>	<p>Demonstrates a <b>satisfactory understanding</b> of the relationship between linguistic meaning and the experience, world view, and culture of speakers and of the role of social, historical, and political contexts in the process of linguistic transformation.</p> <p>Demonstrates <b>some analytical and observational skills.</b></p>	<p>Demonstrates <b>little understanding</b> of the relationship between linguistic meaning and the experience, world view, and/or culture of speakers or the role of social, historical, and political contexts in the process of linguistic transformation.</p> <p><b>Does not demonstrate analytical and observational skills.</b></p>



**Areas of Inquiry –**

**AH: Arts and Humanities (6 credits)** - *Students must take **two** courses and meet **two** of these goals.*

**GOAL AHR – Student is able to... Engage critically in the process of creative expression.**

OUTSTANDING	GOOD	SATISFACTORY	UNSATISFACTORY
<p><b>Formulates, critically analyzes, and expertly engages</b> in the creative process in a particular medium.</p> <p><b>Generates innovative and highly imaginative creative solutions</b> to creative challenges.</p> <p><b>Establishes and applies a clear set of criteria for the critical evaluation of outcomes.</b></p>	<p><b>Fully describes and engages</b> in the creative process in a particular medium.</p> <p><b>Generates imaginative solutions</b> to creative challenges.</p> <p><b>Provides a critical evaluation of outcomes.</b></p>	<p><b>Satisfactorily describes and engages</b> in a creative process in a particular medium.</p> <p><b>Effectively applies solutions</b> to creative challenges presented in course materials.</p> <p><b>Evaluates outcomes and identifies strategies for improvement.</b></p>	<p><b>Does not</b> effectively engage in a creative process in a particular medium.</p> <p><b>Fails to</b> apply lessons from the course to the creative endeavor.</p> <p><b>Does not provide critical evaluation of the outcomes.</b></p>



**Cognitive Skills and Processes -**

**WCR, WCD: Writing and Communication (9 credits)** - Students must take **three** courses, and meet **both WCR and WCD**, as follows:

- All students must take **01:355:101 – Expository Writing** or its equivalent.

- Students must take **one additional course** (3 or more credits) focused on revision to meet **WCR**:

*Communicate complex ideas effectively, in standard written English, to a general audience, and respond effectively to editorial feedback from peers, instructors, &/or supervisors through successive drafts & revision.*

- Students must **take one additional course** (3 or more credits) focused on writing in a specific discipline to meet **WCD**:

*Communicate effectively in modes appropriate to a discipline or area of inquiry; evaluate and critically assess sources and use the conventions of attribution and citation correctly; and analyze and synthesize information and ideas from multiple sources to generate new insights.*

\* Cases of suspected plagiarism should be reported to the department Undergraduate Chair/Director, and/or Judicial Affairs in the Office of the Dean of Students: <http://judicialaffairs.rutgers.edu/>



**Cognitive Skills and Processes -**

**WCR, WCD: Writing and Communication (9 credits) - Students must take *three* courses, and meet *both* WCR and WCD.**

<b>GOAL WCR – Student is able to... Communicate complex ideas effectively, in standard written English, to a general audience, and respond effectively to editorial feedback from peers, instructors, &amp;/or supervisors through successive drafts &amp; revision.</b>			
<b>OUTSTANDING</b>	<b>GOOD</b>	<b>SATISFACTORY</b>	<b>UNSATISFACTORY</b>
<p>Presents complex ideas as a <b>clear and compelling argument. Insightful, well-reasoned, and original analysis.</b></p> <p><b>Clear, easy to follow organization</b> with intro, body, and conclusion.</p> <p><b>Eloquently-written.</b> Appropriate word choices. Free of grammar and spelling mistakes.</p> <p>Demonstrates <b>effective incorporation of constructive criticism</b> in <b>successive drafts</b> and evidences <b>self-editing and revision without prompting.</b></p> <p>Improvement evident in successive drafts resulting in an <b>outstanding final work.</b></p>	<p>Makes a <b>clear argument</b>, based on <b>plausible reasoning. Sustains an argument</b> throughout the analysis.</p> <p><b>Clear organization.</b></p> <p><b>Well-written</b> with only incidental word choice, grammar, or spelling errors.</p> <p>Demonstrates <b>effective incorporation of constructive criticism</b> from peers and instructors in successive drafts.</p> <p>Improvement evident in successive drafts resulting in a <b>good final work.</b></p>	<p>Presents a <b>satisfactory argument and analysis</b> following the strictures of the course.</p> <p><b>Satisfactory organization</b> that allows the reader to follow the argument.</p> <p>Writing is <b>satisfactory.</b></p> <p><b>Satisfactorily responds</b> to constructive criticism from peers and instructors in successive drafts.</p> <p>Improvement evident in successive drafts resulting in a <b>satisfactory final work.</b></p>	<p><b>Fails to</b> make a cogent argument or to offer sound analysis of any but the simplest ideas.</p> <p><b>Poorly organized</b> and difficult to follow, impeding meaning.</p> <p><b>Multiple composition errors</b> that interfere substantially with comprehension.</p> <p><b>Does not</b> incorporate feedback, or does not submit revised work.</p> <p><b>Final work is unsatisfactory.</b></p>



**Cognitive Skills and Processes -**

**WCR, WCD: Writing and Communication (9 credits) - Students must take *three* courses, and meet *both* WCR and WCD.**

<b>GOAL WCD- Student is able to... Communicate effectively in modes appropriate to a discipline or area of inquiry; evaluate and critically assess sources and use the conventions of attribution and citation correctly* ; and analyze and synthesize information and ideas from multiple sources to generate new insights.</b>			
<b>OUTSTANDING</b>	<b>GOOD</b>	<b>SATISFACTORY</b>	<b>UNSATISFACTORY</b>
<p>Addresses topic at an <b>advanced, professional level</b>; communication is well-argued, effectively presented, and appropriate to the intended audience.</p> <p><b>Accurately and effectively employs relevant discipline-specific format and terminology</b>, and is <b>free of</b> word-choice, grammar, spelling or organizational errors.</p> <p>Cites a <b>comprehensive range</b> of relevant sources, and <b>accurately applies appropriate conventions</b> for attribution and citation.*</p> <p>Provides <b>sophisticated evaluation and critical assessment</b> of evidence, arguments, and counter-arguments drawn from multiple sources. Artfully uses this analysis in advancing thesis or placing hypothesis testing in appropriate context.</p> <p><b>Insightfully explores larger implications and connections</b>; demonstrates original thinking; explicates limits of findings.</p>	<p>Addresses topic <b>soundly and effectively</b>; communication is well-argued and <b>appropriate to the intended audience</b>.</p> <p><b>Employs relevant discipline-specific format and terminology, largely free from</b> word-choice, grammar, spelling or organizational errors.</p> <p>Cites clearly <b>relevant sources</b>. <b>Applies appropriate conventions</b> for attribution and citation.*</p> <p>Provides <b>strong evaluation and critical assessment</b> of evidence, arguments, and counter-arguments drawn from multiple sources. Successfully uses this analysis in advancing thesis or placing hypothesis testing in context.</p> <p><b>Explores larger implications and connections</b>; demonstrates critical thinking; identifies limits of findings.</p>	<p>Addresses topic and <b>satisfactorily</b> adheres to the format prescribed by the course.</p> <p>Communication presents a <b>coherent narrative, exposition, or argument, and an awareness of the intended audience</b>.</p> <p><b>Satisfactorily cites sources using appropriate conventions</b> for attribution and citation.*</p> <p>Provides <b>satisfactory evaluation and assessment of evidence</b>, arguments, and counter-arguments drawn from multiple sources. Satisfactorily incorporates this material.</p> <p><b>Notes</b> implications, connections, and limits of findings.</p>	<p><b>Does not</b> address topic, or does so in a way that is uninformative, inaccurate, and/or misleading.</p> <p>Communication is confusing and contains numerous <b>errors</b>.</p> <p><b>Fails to</b> cite sources and apply appropriate conventions for citation and attribution.*</p> <p><b>Fails to</b> provide evaluation and assessment of evidence, arguments, and counter-arguments drawn from sources.</p> <p><b>Little or no attention to implications, connections, or limits of findings</b>.</p>



**Cognitive Skills and Processes –**

**QQ, QR: Quantitative and Formal Reasoning (6 credits) - Students must take two courses and meet both of these goals.**

<p><i>If using specific objective questions identified for each goal, the instructor may set the benchmarks for each rating as appropriate to the course and the discipline. For example, a typical benchmarking is laid out here:</i></p>			
90% or more correct	80%-89% correct	70%-79% correct	69% or less correct

<p><b>GOAL QQ – Student is able to... Formulate, evaluate, and communicate conclusions and inferences from quantitative information.</b></p>			
OUTSTANDING	GOOD	SATISFACTORY	UNSATISFACTORY
<p><b>Effective and insightful</b> selection and presentation of a range of quantitative information.</p> <p><b>Formulates well-justified</b> conclusions/inferences from the data at a high level of specificity and sophistication. <b>Engages in extensively critical analysis</b> of the conclusions/inferences including discussion of tests of validity and scope.</p> <p>Presentation is <b>analytically precise, persuasive, and thorough.</b></p>	<p><b>Appropriate</b> selection and presentation of relevant quantitative information.</p> <p>Draws a <b>reasonably-justified</b> conclusion/inference from the data.</p> <p><b>Identifies</b> basic strengths and weaknesses of the conclusions/inferences noting concerns about validity and scope.</p> <p><b>Clearly and correctly</b> presents conclusions and inferences.</p>	<p><b>Satisfactory selection</b> and presentation of relevant quantitative information in adherence with standards conveyed in the course.</p> <p><b>Draws</b> conclusions/inferences from the data, <b>noting appropriate concerns</b> about validity and scope.</p> <p><b>Satisfactorily</b> presents conclusions and inferences.</p>	<p><b>Fails to</b> select and present relevant quantitative information in adherence with standards conveyed in the course.</p> <p><b>Fails to</b> draw, or critically assess, logical conclusions/inferences from the quantitative information.</p>



<b>GOAL QR– Student is able to... Apply effective and efficient mathematical or other formal processes to reason and to solve problems.</b>				
	OUTSTANDING	GOOD	SATISFACTORY	UNSATISFACTORY
<p><b>Symbolization:</b> The ability to convert a problem into a setting using symbolic terminology</p>	<p><b>Describes</b> the relevant quantities or variables in the problem. <b>Labels</b> all the relevant quantities in the problem; uses the area’s mathematical/symbolic terminology correctly.</p>	<p><b>Labels</b> all the relevant quantities in the problem; uses the area’s mathematical/symbolic terminology correctly.</p>	<p><b>Satisfactorily labels</b> all the relevant quantities in the problem; uses the area’s mathematical/symbolic terminology correctly.</p>	<p><b>Fails to</b> label all the relevant quantities in the problem or uses the area’s mathematical/symbolic terminology incorrectly.</p>
<p><b>Relationships:</b> The ability to connect quantities and find relationships among symbolic quantities</p>	<p><b>Verbally connects</b> quantities and finds relationships among symbolic quantities. Provides <b>complete and accurate visual representations</b> of relationships among symbolic quantities that reveal key relationships.</p>	<p>Provides <b>complete and accurate visual representations</b> of relationships among symbolic quantities that reveal key relationships.</p>	<p>Provides <b>satisfactory visual representations</b> of relationships among symbolic quantities that reveal key relationships in accord with specific course directives.</p>	<p>Uses <b>irrelevant</b> information in trying to set up the problem; relies on visual representations that are <b>misleading; neglects</b> fundamental connections and relationships.</p>
<p><b>Formulation:</b> The ability to construct an appropriate symbolic framework</p>	<p>Structures the problem in a <b>novel</b> way or selection shows a <b>sophisticated understanding</b> of relevant conventional frameworks.</p>	<p><b>Identifies a relevant</b> conventional framework for the problem.</p>	<p><b>Satisfactorily adopts</b> a relevant conventional framework for the problem from the course materials.</p>	<p><b>Fails to</b> employ a symbolic framework for the problem.</p>
<p><b>Analysis:</b> The ability to carry out algorithmic and logical procedures to resolution</p>	<p><b>Elegantly carries out</b> a logical sequence of algorithms and procedures; uses symbolic operational rules and performs computational steps correctly.</p>	<p><b>Carries out</b> a logical sequence of algorithms and procedures; uses symbolic operational rules and performs computational steps correctly.</p>	<p><b>Satisfactorily carries out</b> a logical sequence of algorithms and procedures; uses symbolic operational rules.</p>	<p><b>Fails to</b> follow an appropriate algorithm or mathematical procedure to completion; makes serious computational errors.</p>
<p><b>Interpretation:</b> The ability to draw valid conclusions from numeric/symbolic evidence</p>	<p><b>Draws insightful, valid, well-stated, and well-justified conclusions from the symbolic/numeric solution.</b></p>	<p><b>Draws valid clear and reasonably-justified conclusions from the symbolic/numeric solution.</b></p>	<p><b>Satisfactorily draws valid conclusions from the symbolic/numeric solution.</b></p>	<p><b>Fails to</b> draw conclusions from the symbolic/numeric solution.</p>