



College of Letters & Science
UNIVERSITY OF WISCONSIN-MADISON

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Jocelyn Milner, Vice Provost and Director, Academic Planning and Institutional Research

FROM: Elaine M.  Klein, Associate Dean and Chair, University General Education

RE: Committee Report of the University General Education Committee, 2018-19

CC: Cal Bergman, Associate Dean for Student Academic Affairs, L&S
Karen Mittelstadt, Academic Planner, Academic Planning and Institutional Research
Jennifer Noyes, Associate Dean for Operations and Staff
Eric Wilcots, Interim Dean, L&S

I'm pleased to share with you the annual report of the University General Education Committee, covering the committee's work in the 2018-19 academic year.

In the coming year, we will continue our discussions of how best to integrate GER learning outcomes into the tools campus is developing, implementing, and improving for proposing courses, building syllabi, fielding course evaluations, and expanding the AEFIS system to facilitate direct assessment of student learning relative to broad program outcomes.

If you have questions about the report, please do not hesitate to contact me (elaine.klein@wisc.edu; 608-265-8484).

Office of the Dean, College of Letters & Science

Report of the University General Education Committee, 2018-19

I. Overview

The University General Education Committee (UGEC) oversees the campus-wide undergraduate General Education Requirements, or GER. Adopted by the Faculty Senate in May 1994, these requirements represent the common ground found by faculty who compared requirements in all UW-Madison undergraduate schools and colleges. The faculty committee intended the requirements to ensure that “every graduate should be able to write and speak with competence, employ tools and methods of mathematics and quantitative reasoning, and possess knowledge in one or more of the natural sciences and social sciences, in literature, and in at least one or more of the human disciplines” (Bitzer Committee Report, p. 5). Prior to the adoption of GER, no campus-wide requirements existed to ensure a common body of knowledge or skills for undergraduate education at UW-Madison.

To facilitate implementation of GER, expectations were articulated in terms of courses and credits, with course criteria or broad outcomes defined by faculty committees. The College of Letters & Science was entrusted to implement and administer the requirements. Today, the dean of the College convenes the University General Education Committee to provide oversight that informs administration of the requirements. The L&S dean also appoints the director of General Education and funds staff who support the work of the committee and its subcommittees and liaisons, process course proposals, and coordinate faculty review of student requests for course substitutions and exceptions. The dean appoints UGEC members in consultation with the deans of the other undergraduate schools and colleges and leaders of units that support undergraduate education. The UGEC reports annually to, and consults with, the University Academic Planning Council (UAPC), which approves policy changes the committee may recommend. UGEC operating procedures and other information about the GER program are available online at <http://gened.wisc.edu>.

As noted in previous reports, the requirements have not been substantially revised since they were originally approved; however, consistent attention of faculty and staff involved in the program, informed by efforts to assess student learning, has led to incremental updates and curation of courses that meet key requirements.

The report that follows provides an overview of topics on which the committee, its subcommittees and liaisons focused attention in 2018-19. We begin with policy matters, summarize assessment activities, and conclude with a summary of other business conducted. A list of the 2018-19 membership and published Guide description are attached (Attachments A and B).

II. Policy Matters – Update: Implementation of Policy Clarifications: English as a Second Language and Communication A

As detailed in the UGEC memo “University General Education and ESL” (Klein to Mangelsdorf and Milner, 3/23/2018, discussed by the UAPC on April 19, 2018), the committee clarified the connection between English language proficiency and the Communication A requirement, which

can be satisfied with English as a Second Language Coursework (ESL 118). This clarification, as well as other changes in practice and procedure, attempted to address concerns and complaints that had been expressed about UW-Madison practices for English as a Second Language (ESL) placement, treatment of test and transfer credit for students directed to ESL placement, and satisfaction of the Communication A requirement.

- Placement policy was clarified and changes were implemented to direct students to the UW-Madison English as a Second Language Assessment Test (UW-ESLAT) or to the University of Wisconsin system-wide English Placement Test (UW-EPT). Placement test information is published and communicated to prospective students on the Admissions website and in the Guide.
- The Office of the Registrar records eligible transfer and test credit for college-level composition courses.
- All students may use eligible test or transfer credit to satisfy the UW-Madison Communication A requirement.
- The ESL program (L&S Department of English) and Testing and Evaluation Services (School of Education) have worked together to improve communication between these units concerning UW-ESLAT testing procedures, scoring, and determinations related to “re-testing” students that adjust placement at the beginning and end of each ESL course taught. ESL director Sandy Arfa reports that “the process is quite smooth now.”
- The ESL program has created a series of course requisites that are enforced. This facilitates timely enrollment and smooth progress for students on the ESL pathway. This is reported to be very beneficial to students as well as to the program.
- ESL courses have clearly defined learning outcomes. Integration of those outcomes into the campus assessment system and course evaluation tool will allow ESL outcomes to be assessed more efficiently.
- Student service units involved with Summer Orientation, Advising, and Registration were asked about the implementation of changes to ESL policy and testing. The colleagues report that they assisted with implementation and training of advisors. Overall, they express value for the greater transparency surrounding ESL testing, placement, and advising. These colleagues also expressed concern that some transfer students who are not directed to ESL placement and courses may still need access to the important skills these courses develop. This topic should be incorporated into future assessment of student learning relative to ESL.

Efforts to support English language learning and student success in other courses continues to be a work in progress, and will continue to involve several units across campus. The UGEC will continue to maintain an interest in this partnership as it relates to the use of ESL coursework to satisfy the first tier of the Communication General Education Requirement.

II. Assessment of Student Learning

Since 2003, the UGEC has used a formally adopted long-range Assessment Plan to guide our understanding of the impact and efficacy of the General Education Requirements. (Reports of specific GER assessment projects are online at <https://gened.wisc.edu/AssessmentReports/>.) Over

the years, the UGEC has updated the GER learning outcomes and adapted its assessment strategy to study the four domains of learning relative to GER, rather than to assess individual courses or to focus on detailed components of individual requirements.

GER Learning Outcomes and the Student Digital Ecosystem - Syllabus and Course Evaluation, Direct Evidence of Student Learning (DESL)

The committee continued to participate in discussion of the intersection of General Education and the “digital ecosystem” that now affects every academic and curricular process on campus. The UGEC offers consultation about how faculty and staff use these tools, and supports the aspiration of using them to facilitate sustainable and strategic assessment of GER.

In spring 2019, the Office of the Provost offered a limited number of one-time small grants for departments willing to jump-start a process to develop common learning outcomes and common syllabi for undergraduate group instruction, multi-section courses or for all single-section courses numbered below the 700 level. The grants are intended to accelerate a process that is otherwise expected to occur over time on an unfunded basis. The departmental deliverables include: Course learning outcomes are approved and entered into the AEFIS tool which will then be uploaded to Lumen Courses Common course syllabi are developed, conforming to university guidelines, for all sections and are uploaded in the Canvas/AEFIS syllabus template, or submitted to the department’s repository as a document file. To date, eight departments including those that teach several General Education courses, were awarded funding: Economics, Marketing, Mathematics, Genetics, Classical and Ancient Near Eastern Studies, Political Science, Bacteriology and select courses in Engineering. Another 4-6 departments will be invited to join the project in fall, 2019. An exciting benefit of this project is that once the course learning outcomes are available in Canvas/AEFIS, instructors will be able to collect student data mapped to the learning outcomes, including the General Education Learning Outcomes (GELOs). For faculty and instructors who teach general education courses, this Direct Evidence of Student Learning (DESL) initiative will further facilitate direct assessment of GERs.

This work will continue in the coming year.

GER Assessment Focus: Quantitative Reasoning - Clarification of Criteria and Learning Outcomes

As reported to the University Academic Planning Council on 20 December, 2018, the UGEC clarified the criteria for courses that satisfy the Quantitative Reasoning requirements, to clarify the distinction between the first and second tiers of that requirement. This clarification addressed course content as well learning outcomes specified for Quantitative Reasoning A and B courses. This work will make the requirement easier to administer, and student learning in the courses easier to assess. These changes have been incorporated into regular communication with departments about Quantitative Reasoning courses, and are now used to evaluate courses proposed to meet the requirements (Attachment C).

GER Assessment Focus: ESR Pilot Assessment

In the 2016-17 survey of faculty and staff who teach ESR courses, instructors recommended that more direct assessment of student learning in these courses should be planned and undertaken. The 2017-18 Ethnic Studies Subcommittee met with ESR course instructors and developed an assessment plan for ESR courses, and in Spring 2019, piloted the first assessment of student learning under direction of that plan.

Under the plan, ESR instructors will be given a short writing prompt to use in their classes. Prompts are developed to assess one of the three guiding ESR learning outcomes; they are intended to be flexible, to allow instructors to tailor the prompt to their own courses. The ESR committee also developed a rubric that can be used to evaluate student responses relative to the outcome, and this is also shared with instructors.

In Spring 2019, the subcommittee piloted the first assessment. A set of ESR courses was selected with the dual goals of involving faculty and courses distributed across colleges/schools and of achieving representation from small and large classes. Faculty were asked to incorporate a prompt intended to assess students' "Awareness of History's Impact on the Present" in their ESR course:

In this class, we have read about [topic/issue/experience] of [members of a community/subpopulation/group in the U.S.]. In 200-300 words, describe the contribution of past [policy/legislation/institutional arrangement] to the current experiences of people who identify as being part of this community/group.

Responses were gathered from participating courses and a randomly selected sample was evaluated. The evidence revealed several strengths in student understanding. They also indicated places where students understanding of the complexity of elements important to a culture in relation to its history, politics, economy, or beliefs and practices could be deepened.

The results of the pilot suggest that the process could be improved. For example, it will help the instructors to offer more guidance on the prompts. In a few cases the prompts were tailored in a way that did not ask about history's impact. In 2019-20, the prompt will be shared earlier, and instructors will be asked to share how they expect to use the prompt. The committee noted the importance of maintaining flexibility. In some courses, the prompt exercise fit easily into the flow of the course; in others it did not.

During the Spring 2020 assessment, participating faculty will be surveyed to learn more about (a) ways to integrate the assessment more easily into their courses and (b) whether/how the new DESL project may help them with this integration.

GER Assessment Focus: Ethnic Studies Curriculum Changes and Revised Course Criteria

In 2017-18, recommendations arising from the previous year's curriculum mapping effort that focused on the ESR course array were implemented, and that work continued in 2018-19. Several courses with the ESR designation that had been placed into "monitoring" status were submitted for evaluation of their compliance with the criteria, and all departments and programs that teach ESR courses were informed of changes to ESR course criteria that were implemented in Fall 2019. Today, courses in "monitoring" status have been revised to meet the criteria, have been reviewed by the ESR subcommittee, and their status as ESR courses has been reaffirmed.

III. GER Course Approval

The online course proposal system includes GER in the course approval workflow. This integration ensures that faculty governance procedures are followed and decisions are made with appropriate and timely consideration. Importantly, fewer courses are “getting lost” in email consultation or delayed by lack of clarity about the course approval process. As we approach the end of the second-full year of this system, GER can report that the new course proposal system is working well. (A list of courses approved in 2018-19 to meet the Communication, Quantitative Reasoning, and Ethnic Studies requirements appears here as Attachment D.)

IV. Other Matters

In 2018-19, the UGEC again coordinated the annual UW-Madison scholarship competition focused on the liberal arts. This competition asks students to articulate, in their own words, the role liberal education plays in helping them to understand their lived experience. The winning essays are available online at <http://ls.wisc.edu/news/the-liberal-arts-form-the-foundation-for-the-future>.

Finally, the UGEC participated in the decennial Higher Learning Commission comprehensive evaluation of the University of Wisconsin-Madison. In anticipation of the comprehensive visit, the UGEC contributed to and reviewed the Assurance Argument, met with members of the campus team that prepared the argument, and participated in several preparatory sessions. In March 2019, they helped welcome members of the peer-review team and thoughtfully answered many questions about the program. Their informed and active engagement provided the best possible evidence of UW-Madison’s commitment to university-wide general education, and the committee is ready to contribute as needed to addressing the HLC team’s recommendation that UW-Madison evaluate and revisit its dated GER program.

On behalf of the University General Education Committee, this report is submitted by

Elaine M. Klein, Chair
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Attachments:

- A. UGEC Membership, 2018-19
- B. The Guide: General Education Requirements
- C. Criteria and Learning Outcomes for Quantitative Reasoning Courses
- D. 2018-19 Course Approvals for Communication, Quantitative Reasoning, and Ethnic Studies

University General Education Committee 2018-2019

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requirements. Please refer to this website (<https://gened.wisc.edu>) for more information about the requirements.

The university-wide General Education requirements are:

BREADTH, 13–15 CREDITS, DISTRIBUTED OVER THREE AREAS

All students must complete 13–15 credits of coursework intended to provide a **breadth** of experience across the major modes of academic inquiry. This requirement encourages students to adopt a broad intellectual perspective, to examine the world through investigative, critical, and creative strategies practiced in the natural (computational, biological, and physical) sciences, social and behavioral sciences, as well as in the arts and humanities.

Learning Outcomes: Students acquire critical and creative thinking skills as well as enhance their problem-solving skills through a breadth of study across the humanities and arts, social studies, computational, biological sciences and physical sciences.

In courses satisfying the Breadth requirement, students will:

- articulate examples of significant contributions to human understanding achieved through various “ways of knowing” found in the arts and humanities; social and behavioral sciences; and computational, biological, and physical sciences.
- recognize and articulate the ways in which different disciplines approach questions that call upon different tools of inquiry, understanding, and creative enterprise.
- identify ways in which multiple tools of inquiry and understanding can be used to achieve greater insight into resolving “big” questions (e.g., climate change, poverty, global health etc.), evaluating the strengths and weaknesses of those approaches, and understanding which complementary approaches will help achieve meaningful change.
- evaluate different modes of inquiry across the humanities and arts; social studies; computational, biological, and physical sciences, and identify strengths and weaknesses of those approaches across disciplines when approaching a question.

To achieve these outcomes, students are required to complete courses in the following areas.

- Natural Science, 4 to 6 credits, consisting of one 4- or 5-credit course with a laboratory component; or two courses providing a total of 6 credits
- Humanities/Literature/Arts, 6 credits
- Social Studies, 3 credits

This requirement challenges students to understand that there are many ways to research, understand, communicate about, and interpret creatively the world around us. These “ways of knowing” intersect and overlap, and the ideas presented in one area will often inform and transform what students know and how they think about the others. Students develop skills that help them make informed decisions in a wide range of political, economic, and social contexts, to think critically about the world, to better understand their own and others’ experience, and to behave in socially responsible ways. (For more information about how this exposure to breadth of inquiry and expression enriches students’ undergraduate experience and complements intensive study in the major, please see the General Education Requirements (<https://gened.wisc.edu>) website.)

GENERAL EDUCATION REQUIREMENTS

All undergraduate students at UW–Madison must complete the university-wide General Education Requirements, which are designed to convey the essential core of an undergraduate education. This core establishes a foundation for living a productive life, being a citizen of the world, appreciating aesthetic values, and engaging in lifelong learning in a continually changing world. These requirements provide for breadth across the humanities and arts, social studies, and natural sciences; competence in communication, critical thinking, and analytical skills necessary for success in college and beyond; and investigation of the issues raised by living in a culturally diverse society. This core is intended to provide students with intellectual and practical skills, basic knowledge of human cultures and the physical world, strategies for understanding these topics, and tools intended to contribute to their sense of personal and social responsibility. General Education complements the work students do in their majors and degrees. Together, these requirements help students learn what they need to know not just for making a living, but also for making a life.

Completing the General Education Requirements is an important part of achieving these competencies, and to do so, students choose from many courses in communication, ethnic studies, quantitative reasoning, and breadth of study across disciplines in the natural sciences, humanities, literature, and arts, and social and behavioral sciences.

Each school and college may choose to allow General Education courses to count toward other degree and/or major requirements. Students should always check with their advisors to discuss any additional degree requirements and determine if students are required to take specific General Education courses or to complete the requirements in a particular order. Students should review their Degree Audit (DARS) report to see how they are progressing toward fulfilling the General Education

COMMUNICATION, 3 TO 5/6 CREDITS

The **Communication** requirement helps to ensure that all graduates of UW–Madison acquire essential communication and research-gathering skills necessary for success in university course work and beyond. Communication–A (**Comm–A**) and Communication–B (**Comm–B**) courses train students to gather and assess information from a variety of sources and to present different kinds of information, insight, and analysis to diverse audiences. These courses are essential for students' career success and their preparation for public life in a rapidly changing world. While Comm–A courses focus exclusively on essential communication skills, Comm–B courses provide content instruction in a specific discipline and teach research, writing, and speaking skills in conjunction with the course content. Comm–B courses are offered by departments across campus and vary widely in topic, content, and format.

Learning Outcomes: Students develop skills that enable them to be effective speakers and writers in and out of the classroom.

In courses satisfying the Communication requirement, students will:

- make effective use of information retrieved, organized, and synthesized from appropriate sources.
- present ideas and information clearly and logically to achieve a specific purpose.
- make effective use of communicative forms appropriate to a specific discipline, and adapted to the intended audience.
- use appropriate style and conventions associated with particular communicative forms, genres, or disciplines.

To achieve these outcomes, students must complete the following Communication requirements:

- **Part A. Literacy Proficiency.** 2–3 credits at first-year level dedicated to reading, listening, and discussion, with emphasis on writing. While most incoming freshmen are required to complete coursework to fulfill this requirement, students may be exempted from Part A by approved college course work while in high school, AP test scores, or placement testing. Students are expected to satisfy this requirement by the end of their first year of undergraduate study.
- **Part B. Enhancing Literacy Proficiency.** 2–3 credits of more advanced coursework for students who have completed or been exempted from Part A. Students should consult with the appropriate undergraduate advisor about when this requirement should be completed. Courses that satisfy this requirement are offered in many fields of study; although a wide variety of courses fulfill this requirement, students are encouraged to select a course most in keeping with their interests or other requirements of their intended field(s) of study.

Please note: Because English is the language of instruction at UW–Madison, Communication A and B courses are taught in English, and student work in them is also completed in English.

ETHNIC STUDIES, 3 CREDITS

The **Ethnic Studies** requirement is intended to increase understanding of the culture and contributions of persistently marginalized racial or ethnic groups in the United States, and to equip students to respond constructively to issues connected with our pluralistic society and global community. Because this increased understanding is expected to have a positive effect on campus climate, students are expected to complete this requirement within the first 60 credits of undergraduate study

Learning Outcomes: Students draw connections between historical and present day circumstances, and consider perceptions and cultural assumptions when examining questions and making decisions.

In courses satisfying the Ethnic Studies requirement, students will:

- articulate some of the effects the past has had on present day circumstances, perceptions of, and disparities in, race in the U.S.
- recognize and question cultural assumptions, rules, biases, and knowledge claims as they relate to race and ethnicity.
- examine questions and make decisions with consideration for the cultural perspectives and worldviews of others.

The skills listed above apply to students' lives inside and outside the classroom, and by pursuing these objectives, students will further enhance their ability to participate in a multicultural society more effectively, respectfully, and meaningfully. Students complete this requirement by taking one course of at least 3 credits that is designated as an Ethnic Studies course.

QUANTITATIVE REASONING, 3 TO 6 CREDITS

Quantitative Reasoning is the process of forming conclusions, judgments or inferences from quantitative information. The Quantitative Reasoning requirement at UW–Madison has two parts: Part A and B. **Quantitative Reasoning A** courses provide students with skills in mathematics, computer science, statistics or formal logic that are needed for dealing with quantitative information. The acquired skills are broad-based in order to have a positive impact on the readiness of students to take a Quantitative Reasoning B course in a variety of disciplines. **Quantitative Reasoning B** courses allow students to enhance their Quantitative Reasoning Proficiency in a more advanced setting, where they make significant use of quantitative tools in the context of other course material.

Learning Outcomes:

Quantitative Reasoning Part A:

In an introductory course in college-level mathematics, computer science, statistics, or formal logic that is intended to prepare students for more advanced work in a disciplinary context, students will:

- solve problems;
- draw conclusions; and
- develop models and/or interpret data and/or devise algorithms.

Quantitative Reasoning Part B:

In the disciplinary or interdisciplinary context of a course designed to build on the tools of college-level mathematics, computer science, statistics, or formal logic, students will:

- manipulate quantitative information to create models, and/or devise solutions to problems using multi-step arguments, based on and supported by quantitative information;
- evaluate models and arguments using quantitative information; and
- express and interpret in context models, solutions, and/or arguments using verbal, numerical, graphical, algorithmic, computational, or symbolic techniques.

The **Quantitative Reasoning Part A** requirement can be satisfied by:

- approved college work while in high school, AP test scores, or placement testing; or

- taking a 3 credit course at UW–Madison with a Quantitative Reasoning A designation.

The **Quantitative Reasoning Part B** requirement, which enhances students' proficiency in this domain, can be satisfied by taking a designated QR-B course of at least 3 credits in a variety of fields of study. Students are encouraged to select a course in keeping with their interests or to satisfy other requirements for their major or degree program.

To ensure timely completion of the undergraduate degree, students must demonstrate minimum math proficiency before they can enroll in a Quantitative Reasoning Part A course. They should complete Part A of the Quantitative Reasoning requirement by the end of their first year, and must complete Part A before they enroll in Part B.

IDENTIFYING COURSES THAT MEET GENERAL EDUCATION REQUIREMENTS

The university offers hundreds of courses that meet the requirements described above. Students should consider their own interests and check with their advisor when deciding which courses to complete. Please note that many undergraduate programs of study have breadth requirements that go beyond these basic university-wide requirements.

The following language is used in the UW–Madison course listings to indicate how courses count toward satisfying the communication, quantitative reasoning, and ethnic studies portions of the General Education Requirements. Courses that satisfy these requirements are also tagged with a mortarboard symbol. #

- Communication Part A
- Communication Part B
- Ethnic Studies
- Quantitative Reasoning Part A
- Quantitative Reasoning Part B

Note: Some Communication Part B courses carry Communication B credit only at the lecture or section level and/or only in certain semesters; these courses will be indicated in the Schedule of Classes.

Course descriptions also include information about whether courses meet General Education Humanities, Natural Science, or Social Studies Breadth Requirements. (Click on course numbers in the *Guide* to see this information.) Students should also be aware that each school and college may, at its own discretion, designate additional courses that satisfy these requirements. For this reason, students should consult their advisors to obtain information about how these requirements are implemented in the school or college in which they are enrolled.

GENERAL EDUCATION POLICIES

Only undergraduate-level college courses may satisfy General Education Requirements

Directed or Individualized Study may not be used to satisfy General Education Requirements.

Because these requirements assume that students are engaged in focused study within the designated area of general education, requirements cannot be met with portions of courses.

Exemption from General Education: All students are required to meet the fundamental degree requirements of the university, which include general education.

Disability-Based Waivers: The university has determined that waivers to the communication and quantitative reasoning portions of the general education component would fundamentally alter the nature of the University of Wisconsin–Madison degree. Students should not expect to obtain disability-based waivers to the communication and quantitative reasoning portions of the General Education Requirements.

Pass/Fail: Effective fall 2012, all courses taken to meet the University General Education Requirements must be taken on a graded basis. These grades are included in students' GPA calculations according to school/college GPA rules.

Quantitative Reasoning: Course Criteria and Learning Outcomes

Approved by UGEC 14 September 2018; Report accepted by UAPC 20 December 2018

Overview

Quantitative Reasoning is the process of forming conclusions, judgments or inferences from quantitative information. There are many aspects to quantitative reasoning. These include the recognition and construction of valid mathematical models that represent quantitative information; the analysis and manipulation of these models; the drawing of conclusions, predictions or inferences on the basis of this analysis; and the assessment of the reasonableness of these conclusions.

At UW-Madison, Quantitative Reasoning is divided into two categories, Quantitative Reasoning Part A and Part B. Broadly speaking, Quantitative Reasoning Part A courses provide students with broad quantitative skills that they will later need to apply in a Quantitative Reasoning Part B course. Quantitative Reasoning Part B courses require students to think critically and apply quantitative skills to interpret data, draw conclusions, and solve problems within a disciplinary or interdisciplinary context.

This document clarifies details about these requirements and articulates connections and distinctions between them by describing courses and learning outcomes. Examples are provided to illustrate courses that do and do not meet these requirements. In addition, implementation notes are also provided, to assist in administration of QR-A and B.

Quantitative Reasoning Part A (QR-A)

Description: A Quantitative Reasoning Part A course is an introductory course in college-level mathematics, computer science, statistics or formal logic that prepares students for more advanced work in a disciplinary context.

Quantitative Reasoning Part A Learning Outcomes: Using quantitative information and the tools of college-level mathematics, computer science, statistics or formal logic, students will develop skills to:

- solve problems
- draw conclusions
- develop models and/or interpret data and/or devise algorithms

Examples:

- A College Algebra course
- An introductory math course that emphasizes mathematical reasoning and its application and relevance to daily life.

- An introductory statistics, programming, or formal logic course.

Quantitative Reasoning Part A Implementation Notes:

- Quantitative Reasoning Part A courses are offered for a minimum of three credits.
- Students must complete Quantitative Reasoning Part A within their first 60 credits, and prior to enrolling in Quantitative Reasoning Part B.
- Students may satisfy the Quantitative Reasoning Part A requirement through demonstrated learning as indicated by reaching the required scores on the mathematics placement exam or accepted AP and IB exams.
- Students may satisfy the Quantitative Reasoning Part A requirement with transfer credits of a Quantitative Reasoning Part B course in Mathematics. This provision is limited to Quantitative Reasoning Part B courses in the Mathematics subject listing.
- Quantitative Reasoning Part A courses must include and enforce the prerequisite that students have satisfied or placed beyond remedial mathematics.

Quantitative Reasoning Part B (QR-B)

Description: A Quantitative Reasoning Part B course builds on the tools of college-level mathematics, computer science, statistics or formal logic that are acquired by achieving the Quantitative Reasoning Part A learning outcomes. Quantitative Reasoning Part B courses may be offered at any level, provided that the material challenges students to think critically and apply quantitative skills to develop models, interpret data, draw conclusions, and solve problems within a disciplinary or interdisciplinary context.

Quantitative Reasoning Part B Learning Outcomes: In the disciplinary or interdisciplinary context of a Quantitative Reasoning Part B course, students will:

- Manipulate quantitative information to create models, and/or devise solutions to problems using multi-step arguments, based on and supported by quantitative information.
- Evaluate models and arguments using quantitative information.
- Express and interpret in context models, solutions, and/or arguments using verbal, numerical, graphical, algorithmic, computational or symbolic techniques.

Quantitative Reasoning Part B Implementation Notes:

- Quantitative Reasoning Part B courses are offered for a minimum of 3 credits.
- Because the learning outcomes of Quantitative Reasoning Part B courses depend on Quantitative Reasoning Part A quantitative skills, prerequisites for Quantitative Reasoning Part B courses must include satisfaction of Quantitative Reasoning Part A, and these requisites must be enforced.

- For a course to be certified as a Quantitative Reasoning Part B course, the Quantitative Reasoning Part B content must be a substantive component of the course on which students are evaluated. Course content must directly address the Quantitative Reasoning Part B learning outcomes listed above, and application of quantitative tools and skills must be integrated into what students do to understand, analyze, and communicate about the main subject of the course.

Examples:

- “Quantitative Information” should not be narrowly defined to mean columns of data found in spreadsheets. Rather, courses that meet the criteria for Quantitative Reasoning Part B teach students to use quantitative information to make hypotheses, create logical arguments and conclusions and assess the reasonableness of such arguments. For example, in a Quantitative Reasoning Part B computer science course students may write computer programs to solve a problem, and they also evaluate their work by testing and “debugging” a program to determine if they have developed a functional model.
- Courses that do **not** satisfy the criteria for Quantitative Reasoning Part B courses include those that deal with quantitative information only in one or more of the following ways:
 - Students are given a model (equations, formulas, ...) and are merely required to produce a numerical or qualitative answer through routine calculations or symbolic manipulation.
 - Students are required to use a computer package to perform calculations or carry out a study without subjecting their results to critical analysis, comparing them to other numerical data, arriving at conclusions, predictions or inferences, and assessing their reasonableness.
 - Students are required to deal with quantitative information in primarily descriptive or conceptual ways. For example, courses in "research methods" that lack a substantial reasoning component based on tools covered in a Quantitative Reasoning Part A course would not be certified.

Assessment

As noted in the original documentation about Quantitative Reasoning Part A and B, assessment provides an opportunity to measure the degree to which the Quantitative Reasoning Part A and Quantitative Reasoning Part B courses meet the objectives for general education and those outlined for these QR requirements.

Departments with courses that have been approved as meeting the Quantitative Reasoning Part A or Quantitative Reasoning Part B requirement should expect to cooperate in efforts to assess student learning relative to the goals of Quantitative Reasoning Part A and Quantitative

Reasoning Part B. These assessment activities will generally be undertaken on a representative sampling basis, using in a variety of outcomes assessments with regard to QR courses and the QR learning outcomes. Among the techniques that may be used will be embedded questions, portfolios, course exit interviews, senior exit interviews, and alumni surveys as well as other tools that may become available.

**Communication, Quantitative Reasoning, and Ethnic Studies Course Approvals
 2018-2019**

Subject Descr Short	Catalog Number	Course Title Short	Course Attribute Value
AFRICAN	203	Intro Topics in African Lit	COM B
ASIAN AM	170	Hmong American Experiences	ETHNIC ST
ASTRON	103	The Evolving Universe	QR-B
ASTRON	104	Exploration of Solar System	QR-B
COUN PSY	237	Mental Hlth &Diverse Community	ETHNIC ST
E M A	103	Principles of Engineering	QR-B
ED POL	505	Issues in Urban Education	ETHNIC ST
ENGL, GEN&WS	401	Race, Sex, and Texts	ETHNIC ST
FOLKLORE, GNS	200	Folklore Cent East North Eur	COM B
GEN&WS	240	Feminist App: Research&Writing	COM B
INTER-LS	215	Communicating About Careers	COM B
LITTRANS	245	Spanish American Literature	COM B
PATH-BIO	370	Sci Ethics Dis of Animal Rsrch	COM B
CHICLA, LEGAL ST, SOC	440	Ethnicity, Race, and Justice	ETHNIC ST
CHICLA, LEGAL ST, SOC	443	Immigration, Crime, Enforcemnt	ETHNIC ST
GEN&WS	446	Queer of Color Critique	ETHNIC ST