# MASON CORE LEARNING OUTCOMES ASSESSMENT REPORT

Mason Core Assessment Cycle AY17-20

June 2020

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# Overview

This report documents the work of assessing student learning outcomes across the Mason Core (general education) program during the period of spring 2017 through spring 2020. This was the first large-scale assessment at George Mason University that used student work products to understand learning at the program level; that is, by aggregating results, we can identify patterns across courses and student populations.

This work was supported by the Provost Office, through the leadership of Dr. Bethany Usher and the Office of Undergraduate Education. More than 250 faculty contributed to the work through their disciplinary guidance and direct engagement in different pieces of the assessment. Many more faculty and graduate teaching assistants participated in professional development activities and in discussion of the results over the three-year period.

The report provides information about the purpose, framework, and methods used in this assessment, followed by summary reports of the assessment process and results for each set of learning outcomes in the Mason Core categories. Rubrics used in the assessment follow in the Appendix.

Descriptions of academic and student support units that provide substantial support for student learning are included in the report. It is important to showcase these units for their investment in the Mason Core.

While this report provides summary results for purposes of documentation and sharing with the university community, it should be noted that in-depth analyses and curricular development using these results are ongoing with specific programs and units represented in the report. This work contributes to the continuous improvement of the learning environment and serves the multiple needs of student learners across the university.

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# Table of Contents

# The Mason Core and Expected Learning Outcomes

## The Mason Core

The Mason Core is a set of required courses that create the foundation of a Mason undergraduate degree. The Mason Core provides a breadth of liberal education courses, complementing the depth of knowledge and skills in the majors and minors. The Mason Core helps a student become a Mason Graduate: an engaged, well-rounded scholar who is prepared to act.

The Mason Core is divided into three sections: **Foundation**, **Exploration**, and **Integration**.

**Foundation** courses establish key knowledge and skills needed for academic success. **Exploration** courses provide a breadth of learning across the university. **Integration** courses include upper-division courses that are designed to integrate knowledge and skills learned from **Foundation** and **Exploration** courses into learning in the major. Courses in each category are guided by specific student learning outcomes that are assessed on a regular basis through the student academic experience.

Students take courses that are approved by the Mason Core Committee for each category, transfer in an approved course, or earn an appropriate waiver.

| | **Course Categories** |
|---|---|
| **Foundation Courses** | Written Communication--Lower Division (ENGH 101, 3 credits)<br>Oral Communication (3 credits)<br>Quantitative Reasoning (3 credits)<br>Information Technology and Computing (3 credits) |
| **Exploration Courses** | Arts (3 credits)<br>Global Understanding (3 credits)<br>Literature (3 credits)<br>Natural Science (7 credits)<br>Social and Behavioral Science (3 credits)<br>Western Civilization or World History (3 credits) |
| **Integration Courses** | Written Communication--Upper Division (ENGH 302, 3 credits)<br>Writing-Intensive (3 credits*)<br>Capstone or Synthesis (3 credits) |
| | **Total: 40 credits** |

## Learning Outcomes

Learning outcomes are created and periodically revised by the Mason Core Committee in collaboration with the faculty. All courses that are approved for the Mason Core are expected

to address the relevant learning outcomes through aligned course learning activities and assessments. Learning outcomes are the basis for assessment of student learning in the Mason Core courses. In this report, learning outcomes are listed in each report for the respective category.

## The Honors College: Integrative Core

Taught by faculty from across the University, the Honors College provides exceptionally motivated students an alternative to the Mason Core. The College's integrated curriculum allows students increased opportunities to pursue undergraduate research, minors, internships and study abroad courses. HNRS courses are inquiry-driven, discussion-based seminars that stress the collaborative nature of learning and act as a forum for students to practice the critical reading, writing and speaking skills associated with undergraduate research.

Starting in their first semesters on campus, Honors College students are challenged to identify, articulate, and evaluate multiple perspectives on questions of cultural, scientific, or global significance and to consider evidence that broadens their understanding and challenges their beliefs. In their **Foundations** course (3-4 credits), students learn skills for identifying and pursuing lines of scholarly inquiry and placing them in a larger civic context by using evidence-based reasoning and exploring multiple perspectives. In their first semester, Honors College students are introduced to and practice the skills needed to conduct a literature review, identify enduring questions, consider civic and scholarly stakeholders, and propose a process, budget and timeline for future action or research.

Students go on to hone their inquiry skills through a series of discussion-based seminars that stress collaborative learning, critical reading, writing and thinking: **Inquiry in the Arts, Humanities, & Social Sciences** (12 credits). In their **Civic Engagement** course (HNRS 260), students use these skills to identify pressing issues of public and community concern and explore their corresponding civic duties and responsibilities. In HNRS 360, students address complex problems in a team-based environment involving several scholarly approaches: **Multidisciplinary Challenges**. At both the 200 and 300-levels, students have an option to fulfill course requirements by taking an experiential learning course.

For more information about the Honors College Core Curriculum, see https://honorscollege.gmu.edu/academics/curriculum

# Purpose, Framework, and Method for Assessment

This report documents the work of many individuals and programs across the university to conduct an assessment of student learning outcomes for the Mason Core curricular program. Although there has been ongoing assessment of various aspects of the Mason Core for more than 30 years, this was the first attempt at a large-scale assessment of learning by direct review of student coursework. This strategy was developed to align with best practices in higher education assessment and facilitate faculty engagement throughout the process.

## Purpose for Assessment

Assessment is the systematic process of collecting, evaluating, and using information to determine how well we are meeting our goals. Assessment informs meaningful dialogue and decision-making about how the university can improve its programs and services to support student success. Assessment can help faculty improve their own teaching practice and make informed and collaborative decisions about the curriculum. Assessment and the use of results for improvement are required for Mason's regional accreditation with the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC); specialized accrediting agencies such as ABET and AASCB; and the State Council of Higher Education for Virginia (SCHEV).

## Assessment Framework

### Guiding Questions and Level of Analysis

This assessment focused on addressing two substantive questions:

- To what extent are students achieving the general education (Mason Core) learning outcomes?
- How well are Mason Core courses designed to help students to achieve the learning outcomes?

Additionally, because the assessment strategy used locally developed tools for the first time, it was important to ask a methodological question:

- How effective is a common rubric in assessing learning of broad outcomes across courses and disciplines?

Faculty shared materials and student work samples from course sections to support a *program-level* assessment. The assessment focused on understanding student learning outcomes across courses in a category, and was not an evaluation of any individual course or instructor. Although materials were collected at the end of a semester and the review completed in the following semester, it is hoped that faculty consider this to be a form of formative assessment;

the information from this assessment should be used to make ongoing changes to the Mason Core as well as course curriculum. The work should also be repeated at regular intervals to promote an ongoing assessment process.

### Collaborative Process

The assessment strategy was led by staff in the Provost Office in collaboration with Mason faculty, course coordinators, and department chairs. Faculty have been involved in all stages of this project:

- **Planning:** Chairs identified key faculty, such as course coordinators and leaders for Mason Core courses to share information about their courses and students, identify questions and concerns, and join working groups to develop assessment rubrics. Faculty working groups assisted with planning, selected and developed assessment tools, and provided important disciplinary guidance for the assessment
- **Assessment Activities:** All faculty teaching Mason Core courses were encouraged to participate in the pre-assessment professional development workshop, and were expected to submit a portfolio for their course during the assessment semester. Faculty who participated in those activities were awarded a stipend or professional development funds for their efforts.
- **Reviewing:** All faculty teaching in the Mason Core were invited to participate as reviewers of student work samples. Reviewers were trained on reading student work against the relevant rubric, and received compensation for their efforts.
- **Post-Assessment:** All faculty were invited to participate in a post-assessment meeting in the semester following the assessment. In these meetings, faculty reviewed the results, discussed implications for their courses and programs, and made recommendations for revision.

## Assessment Method

### VALUE Rubric Assessment

The VALUE model was chosen for the Mason Core assessment. VALUE (Valid Assessment of Learning in Undergraduate Education) rubrics were developed by the Association of American Colleges and Universities (AAC&U) beginning in 2008 to provide college campuses with tools to conduct direct assessment of student learning using authentic student work. The rubrics were developed to assess learning over the course of the college experience, and offered detailed developmental milestones for 16 sets of essential learning outcomes. Mason has used the Critical Thinking VALUE Rubric (2009) to assess student work several times since 2010[1].

[1] See Critical Thinking Trends 2010-2014, https://masoncore.gmu.edu/assessment/assessment-results/

VALUE rubrics have been increasingly used in higher education as an authentic, evidence-based approach to assess key learning outcomes across diverse institutions and student populations (McConnell & Rhodes, 2017). Rubrics communicate the expectations for learning to students, and provide a framework for faculty to guide course and curricular decisions. Rubrics have the potential to serve as institutional frameworks for teaching and learning across disciplines (National Leadership Council for Liberal Education & America's Promise, 2008).

Each VALUE rubric identifies key learning outcomes for each area (e.g. critical thinking) and provides four performance indicators for each outcome. The performance descriptors are intended to span a full college experience, from first-year through capstone. AAC&U acknowledges that "learning is often messy" (McConnell & Rhodes, 2017, p. 14), and rubric assessment is imperfect. This model allows the rubrics to be used for students at all levels and across many kinds of work products, thus capturing much of the "messiness". Reviewers are trained to reach agreement on the performance of each learning outcome as evidenced in each student sample. AAC&U claims high content and face validity of its rubrics (Rhodes, 2016), as well as moderate to high reliability ratings (Finley, 2012; McConnell & Rhodes, 2017). Gray, Brown, & Connolly (2017) established the validity of the Quantitative Literacy rubric for measuring student performance for signature projects (typically, graduating seniors), and confirmed the importance of intensive norming/calibration training to insure high inter-rater reliability.

In 2017, AAC&U, in collaboration with the State Higher Education Executive Officers association and the Multi-State Collaborative, published a report of findings from a large-scale assessment using the VALUE rubrics for written communication, quantitative literacy, and critical thinking (McConnell & Rhodes, 2017). The study focused on data from the review of more than 21,000 work samples from 92 public and private two- and four-year colleges and universities across twelve states. Reviewers received extensive online training, both synchronous and asynchronous, and engaged in a rigorous norming process to insure valid ratings.[2] This study represented the first time that the rubrics were used on this scale, and the data can be used to benchmark local assessments. In this report, data from 4-year public institutions in the McConnell & Rhodes study are provided as comparison for Mason assessments in critical thinking, written communication in the major, and quantitative reasoning.

Mason faculty chose to adopt the VALUE rubrics for critical thinking, written communication, and quantitative reasoning. The faculty working group for Global Understanding chose to adapt the Global Learning VALUE rubric, creating a modified version that they thought better aligned with the Mason Core outcomes. For Mason Core categories for which there was no existing VALUE rubric (Arts, Literature, Social and Behavioral Sciences, Natural Sciences, Western Civilization/World History, and IT & Computing), working groups developed rubrics based on the principles and patterns of the VALUE rubrics. This strategy contributed to a sense of consistency across the Mason Core program.

[2] The author of the current report, Stephanie Foster, participated as a reviewer for the Critical Thinking VALUE Rubric in the McConnell and Rhodes study.

In a few cases—specifically, English Composition and Oral Communication—VALUE rubrics were not used, as there were existing assessment tools that aligned with disciplinary and course-specific outcomes. However, these tools were developed with the VALUE rubrics in mind, and can easily be mapped to the VALUE rubrics for Written Communication and Oral Communication, respectively.

## Assessment Process

The assessment cycle featured three main emphases: assistance to faculty with assignment design and alignment to support Mason Core student learning outcomes, direct assessment of student work, and use of results for improvement. There were five stages:

1. **Communication and Planning**
    a. Communications were handled through in-person meetings at key leadership meetings, and through advance emails with deans, directors, and chairs. A website provided detailed information on all aspects of the initiative.
    b. Working groups were created 1-2 semesters in advance to plan for each assessment. Working groups comprised Mason Core faculty, course coordinators, and subject librarians. Working groups created rubrics and provided disciplinary expertise.
2. **Data Collection**
    a. Mason Core faculty were asked to participate if they were teaching in the assessment semester. Faculty were asked to:
        i. participate in a 2-hour pre-assessment workshop at the beginning of semester
        ii. prepare a course portfolio comprising the syllabus, one assignment, and 3-5 randomly selected student work samples
    b. Faculty submitted assessment materials through a secure Blackboard organization. Periodic reminders were sent through Blackboard at key times during the semester. All materials were due by the last day of the semester.
    c. Faculty were provided with randomized enrollment lists with identified students whose work was requested for use in the assessment. Faculty were asked to submit the samples with student names.
3. **Review of Student Work**
    a. Work samples were coded, removing student names as well as course and instructor information.
    b. Faculty volunteer reviewers were given instructions and a pre-review session assignment.

c. Reviewers convened for a full day (9:00 to 5:00), including a 3-hour norming/calibration session, lunch, and five hours to review student work. Ratings were collected using a Qualtrics online form.

d. Inter-rater reliability was assured for each of the Mason Core reviews through an intensive reviewer norming process. Each sample was reviewed twice. Samples that received discrepant scores were reviewed by a third trained reviewer, and the outlier was replaced.

4. **Data Analysis and Reporting**

   a. Rubric data were merged with student demographics and course information. Analyses were conducted based on the appropriateness of the data and in response to faculty requests.

   b. Brief reports were created to share initial results.

5. **Post-Assessment Discussions**

   a. Faculty were asked to participate in a one-hour post-assessment meeting in the semester following the assessment. Meetings focused on results of the assessment, and use of results to promote improvement.

   b. Targeted meetings were held with faculty groups, academic units, and the Mason Core committee to discuss how to use results for curricular improvement.

## Data Used in the Assessment

Both direct and indirect assessment methods were used to address the substantive questions. Data supporting these methods were collected and analyzed for this report, and are outlined below. Table 1 outlines the assessment questions and supporting data used in this report.

*Direct Assessment*

1. **Course Portfolio**: Course syllabus, an instructor-selected assignment prompt (submitted through Blackboard)
2. **Work Samples:** 3-5 randomly selected individual* student work samples from the assignment submitted in #1

*Indirect Assessment*

3. **Student Survey:** End of semester survey administered online and focusing on student perception of their learning in the course

* Team-based samples were collected but not used in this assessment; a separate method and analysis will be necessary.

4. **Faculty Survey:** Anonymous online survey administered after participation in a key assessment activity, use of assessment experience, changes made to instruction, and attitudes about assessment
5. **Banner Course Data:** Student- and course-level data used as analytical variables

*Table 1. Assessment Questions and Strategies with Supporting Data*

| Question | Sub-Questions | Assessment Strategy and Data Used | Level of Analysis |
|---|---|---|---|
| **How are courses designed to address the Mason Core learning outcomes?** | How well do the syllabus, assignment descriptions, and activities support students in achieving the learning outcomes? | Syllabus and assignment review | By category |
| | How well does the course syllabus communicate to students the Mason Core learning outcomes? | Syllabus review | By category |
| **To what extent are students learning?** | How well are students performing on the learning outcomes? | Student work samples | Aggregated student performance data; analysis by key demographic variables |
| | What are students' perceptions of their own learning? | --MC Student Survey<br>--Graduating Senior Exit Survey relevant items | --by category<br>--disaggregated as applicable |
| **How are faculty using assessment experience to improve instruction?** | How are faculty using their experience in faculty development workshops, rubric development working groups, review sessions, and portfolio submission to improve their teaching practice? | Mason Core Faculty Participant Survey | Summary |
| **Information about Mason Core courses** | Courses (5-year trend data: AY15-19)<br>• Number of courses and sections in each category<br>• Course enrollment<br>• Final grades distribution<br>• DFW rates | Banner Course Data | By category<br>Disaggregated by school/college, department, or course as appropriate |
| | Students:<br>• First-time Freshman/ Transfer admits<br>• Gender<br>• Race<br>• Major<br>• Course Grade | Banner Course Data | Used as analytical variables for specific analyses |

# Core Category Assessment Reports

The following twelve sections document the assessment processes, analyses of results, and discussions of actions planned or in progress for each set of Mason Core learning outcomes. Analyses were conducted for each set of learning outcomes based on relevance and by faculty or administrator request. To support readability by a general audience, details of the analyses are generally not included in the report, but are available upon request.

# Arts

## Description and Learning Outcomes

Mason courses in the film making, visual and performing arts stress generative, inquiry-based learning through direct aesthetic and creative experience in the studio environment. Art History courses address the intrinsic relationship of personal and cultural creativity, and the manifestation of aesthetics, visual culture and visual narrative within historical contexts.

Courses in the Arts category must meet the first learning outcome and a minimum of two of the remaining four learning outcomes:

1. **Artistic Processes & Concepts:** Demonstrate an understanding of the relationship between artistic process, and a work's underlying concept, and where appropriate, contexts associated with the work.
2. **Formal Elements & Vocabulary:** Identify and analyze the formal elements of a particular art form using vocabulary and critique appropriate to that form.
3. **Cultural Productions:** Analyze cultural productions using standards appropriate to the form, as well as the works cultural significance and context.
4. **Social, Historical, and Personal Contexts:** Analyze and interpret the content of material or performance culture through its social, historical, and personal contexts.
5. **Engage in Artistic or Creative Processes:** Engage in generative artistic processes, including conception, creation, and ongoing critical analysis.

## Approved Courses and Enrollment

Students are required to pass one course approved for Arts or transfer in an appropriate course. During the assessment period, 88 courses were approved to meet the Arts requirement. The College of Visual and Performing Arts and the College of Humanities and Social Sciences host all of the Mason Core Arts courses. See page 24 for the list of approved courses.

Mason Core Arts courses enroll almost 9,000 students each year with an average class size of 28 (see Table 2). Figure 5 shows enrollment trends over the past five years. The School of Music teaches the most students, enrolling 28.5% of all Mason Core Arts students, followed by School of Art (17.6%), School of Dance (17%), and History & Art History (15.6%).

Students in the Honors College take HNRS 122: Reading the Arts to fulfill their learning outcomes in this category. Although not formally a part of the Mason Core, HNRS 122 is also included in this assessment.

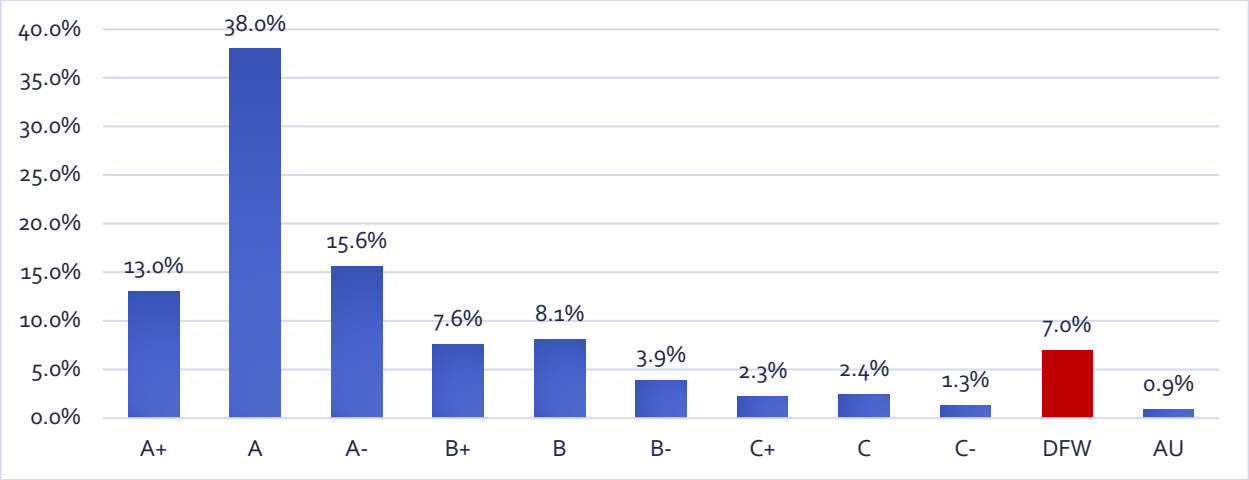
## Courses Included in Assessment

The assessment period included 163 sections of Mason Core Arts courses taught in fall 2018 and nine sections of Honors 122. All but 20 sections offered in the assessment period were expected to participate. Of the 152 course sections included in the assessment period, 86% submitted materials.

### *Enrollment and Grades Distribution*

A total of 4,579 students enrolled in Arts courses, and 216 enrolled in HNRS 122 in the assessment period. Of these students, 92% passed their courses with a C- or above (0.9% audited courses) (see Figure 1).

*Figure 1. Grades Distribution for Mason Core Arts Courses, Fall 2018*




## Assessment Methods

Student work samples of all kinds—written, audio, visual—were requested from all course sections taught in the assessment period. Faculty were asked to submit samples that represented student submissions completed in the final third part of the semester and that allowed students to demonstrate their learning on one or more of the expected course learning outcomes. Samples were selected using randomized course enrollment lists to insure the best possible representative sample.

The **Mason Core Rubric for Evaluating Student Work in Arts Courses** was used for this assessment. The rubric was developed by Mason faculty as a tool to assess individual student work on five learning tasks or outcomes. The rubric uses four performance descriptors: Benchmark, Emerging Milestone, Advanced Milestone, and Capstone, as well as an option for "no evidence." The performance descriptors are developmental, identifying student

performance levels in a context of learning and growth. The rubric is intended to be used across all of the years of a student's college experience, and is not limited to a single course, assignment, or student class level.

Using a process modeled after the VALUE Institute reviewer calibration, faculty reviewers were trained to use the rubric to assess student work. Reviews were normed to produce consistent ratings across reviewers. Reviewers met for an in-person, one-day training and review session and completed the reviews of student work by the end of the day. Reviewers were faculty members who have taught Mason Core Arts courses. Reviewers earned a small stipend for their efforts.

Each student work sample was assessed twice. Results were analyzed for interrater reliability; discrepant reviews were resolved using a third review.

One set of issues arose in conversations with Music faculty about how to assess student performance of learning outcomes in music ensemble courses (e.g. jazz ensemble, Chorale, etc.). Because individual performance in these settings is interdependent with others and thus cannot be assessed in a single sample of student work, the assessment strategy had to be different. In collaboration with the School of Music's undergraduate curriculum committee, a holistic rubric was developed. The **School of Music Rubric for Evaluating Mason Core Outcomes Student Ensemble Holistic Assessment** asked instructors to assess individual students' holistic performance on four learning outcomes over the entire semester. These scores were averaged for each student and rolled into Outcome #5, **Engage in Artistic or Creative Processes**.

## Learning Outcomes Assessment Results

Figures 2 and 3 display results from 343 randomly selected student work samples rated on the rubric, including 39 students rated on the holistic rubric. Figure 2 includes "no evidence" ratings; a rating of "no evidence" was used when the learning outcome could not be seen in the sample; this could mean that either the assignment did not require application of the outcome, or that the student did not demonstrate it. A "no evidence" rating provides important information in aggregate but is given no value for an individual sample.

*Figure 2. Assessment Results, Aggregated, including "No Evidence" Ratings*

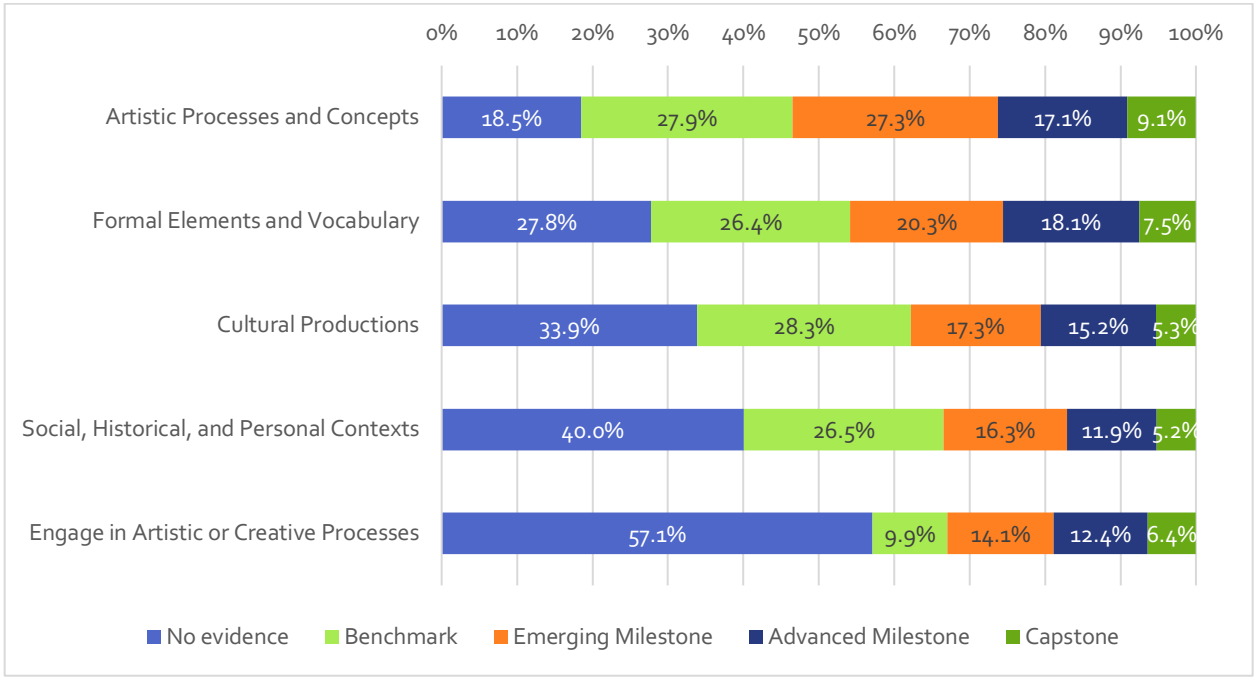
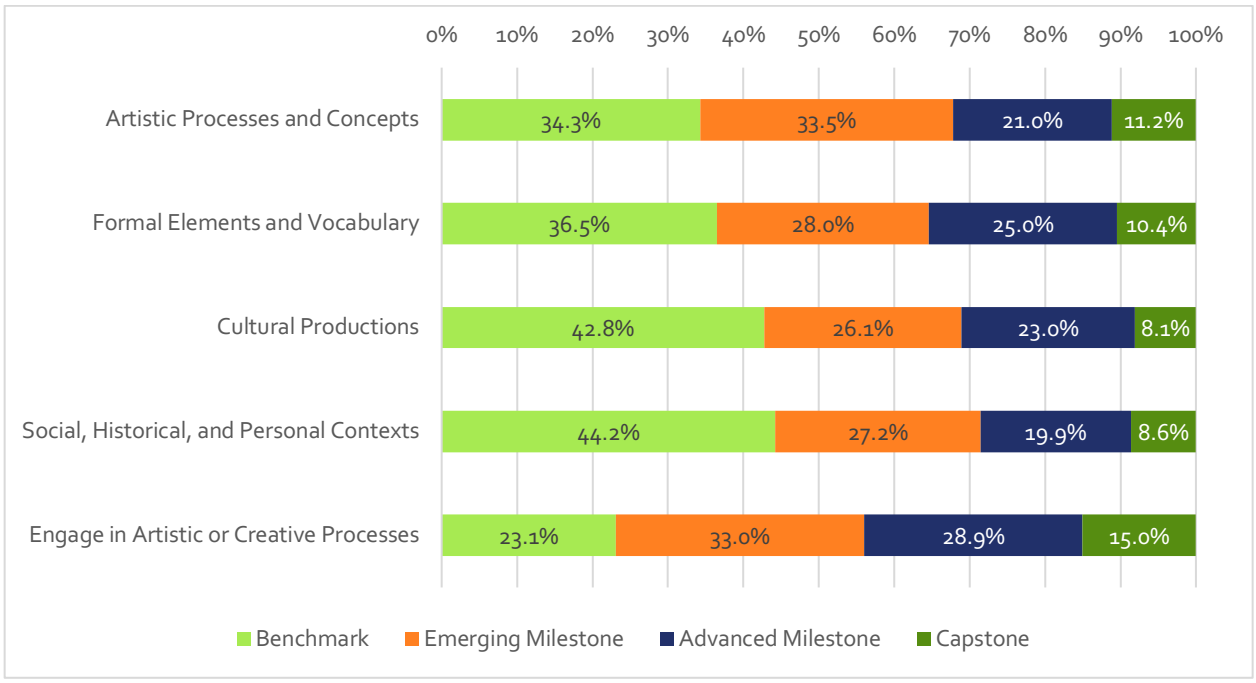



*Figure 3. Assessment Results, Aggregated, excluding "No Evidence" Ratings*



### *Highlights from Analysis of Results*

Data were analyzed to ascertain differences among courses in achieving the five learning outcomes. Comparison tests were conducted using nonparametric statistics because rubric data are ordinal; Independent-Samples Kruskal–Wallis H test was used to analyze differences across courses. "No evidence" was treated as missing. Significant findings ($p < .05$) are noted in the discussion below and in Table 2.

Work samples were least likely to show evidence of **Engage in Artistic or Creative Processes**. Although many of the Arts courses are focused on making or performing art, many faculty members expected this to be too challenging to submit (i.e. video or audio recordings) or to assess (i.e. group choreography), and many (but not all) chose to submit written work instead. This outcome was most likely to be evident in Art & Visual Technology and Music.

Forty percent of samples showed no evidence for **Social, Historical, and Personal Contexts**. This outcome was most likely to be evident in Art History, Honors, Integrative Studies, and Philosophy.

For courses that are classified as "Lecture," student work samples were rated significantly higher than courses classified as "Studio" for Outcome #3, Cultural Productions. Perhaps unsurprisingly, work samples from "Studio" courses were rated significantly higher for **Engage in Artistic or Creative Processes**.

Because the Mason Core Arts courses offer a mix of introductory and advanced courses, it was important to disaggregate the assessment results by lower- and upper-division courses. There were differences in ratings of work samples across lower-division subjects. The highest significant ratings for each learning outcome are listed in Table 2.

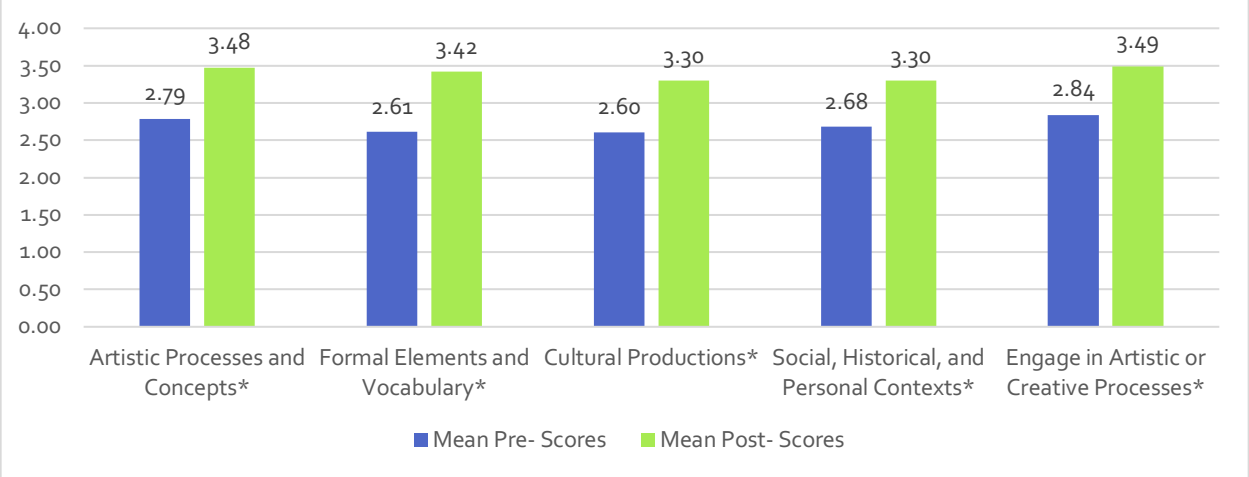
*Table 2. Analysis of Ratings Across Subjects, Lower- and Upper-Division Course Comparisons*

| Outcome | Significant Ratings: Lower Division | Significant Ratings: Upper Division |
|---|---|---|
| **Artistic Processes and Concepts** | Art and Visual Technology; Game Design | Integrative Studies |
| **Formal Elements and Vocabulary** | Art History; Game Design | Art History; Integrative Studies |
| **Cultural Productions** | Game Design; Philosophy | No significant differences |
| **Social, Historical, and Personal Contexts** | No significant differences | Art History; Integrative Studies |
| **Engage in Artistic or Creative Processes** | Game Design; Honors | Dance; Music |

### *Student Self-Assessment*

All students who were enrolled in a Mason Core Arts course during the assessment period received an online self-assessment survey at the end of the semester. The retrospective pre-post self-assessment asked students to rate their knowledge and skills on five learning outcomes at the beginning of the semester (pre), and then again at the end of the semester (post). In total, 264 students completed both the pre and post items, resulting in a 5.5% response rate. A t-test pairwise comparison showed significant perceived learning gains on all five outcomes (see Figure 4).

*Figure 4. Mean Scores on Student Learning Self-Assessment*




Mean scores, self-reported on a scale of 1-4, n=264, * $p < .05$

## How do the Results Meet Expectations?

Because this was the first time that Mason used this rubric to assess student work, these data provide baseline information. For the next assessment cycle, refinements will need to be made to the assessment strategy so that the assessment better aligns with courses that emphasize arts production (see "Limitations of this Assessment" below).

## How are Results Being Used to Improve Students' Educational Experience?

A series of open meetings were held in fall 2019 to share results. Faculty were encouraged to discuss the results of the assessment within their units. All Mason Core Arts faculty were expected to participate in a pre-semester workshop on syllabus and assignment design; School of Music faculty took the opportunity to revise their syllabi for Mason Core courses, using the guidance provided in the workshop. In spring 2020, the new director for the School of Art shared plans to evaluate and restructure the school's curriculum to reach more students across campus, and is drawing upon the data for this purpose.

## Limitations of this Assessment

**How to assess learning across the Arts?** The assessment of student learning outcomes in a general education arts program is not a straightforward task. There is little guidance for assessing general education arts outcomes in higher education (Joe, Harmes, & Barry, 2008). Mason Core Arts courses span 11 disciplines and experiences from arts appreciation, literary criticism, choreography, original painting, jazz ensemble performance, and more. This assessment piloted a new rubric that attempted to create performance descriptors inclusive of all disciplines.

**Did it work?** Some samples aligned to the rubric better than others. In arts production, much of the effort is team-based, so individual performance is difficult or inappropriate to discern. Also, the results of artistic work (e.g. Dance, photography) may not articulate the underlying elements; that is, it is unlikely that the process of producing art would be evident in a final product.

**Recommendation:** The **Student Ensemble Holistic Assessment** rubric was developed to assess student performance on key learning outcomes in music ensembles. Scores on this rubric can be rolled up into the primary rubric for analysis and reporting. It is recommended that similar holistic rubrics be developed for Mason Core assessment in other subjects, such as Dance, Art and Visual Design, and Theatre.

## Assessment Rubric(s)

The **Mason Core Rubric for Evaluating Student Work in Arts Courses** was developed by a team of Mason Arts faculty to evaluate student work for the Mason Core learning outcomes in the Arts. The rubric was modeled after the AAC&U VALUE rubrics. The rubric is designed to evaluate student performance on five learning outcomes, with four increasingly sophisticated performance descriptors for each outcome. The rubric can be used with many types of student work. Most student work will not show evidence of all five outcomes; in this case, an additional category for "no evidence" should be made available.

The School of Music Rubric for Evaluating Mason Core Outcomes: Student Ensemble Holistic Assessment was developed by the School of Music Undergraduate Committee to assess individual student performance in ensemble music courses.

## Courses Approved for Mason Core Arts in Fall 2018

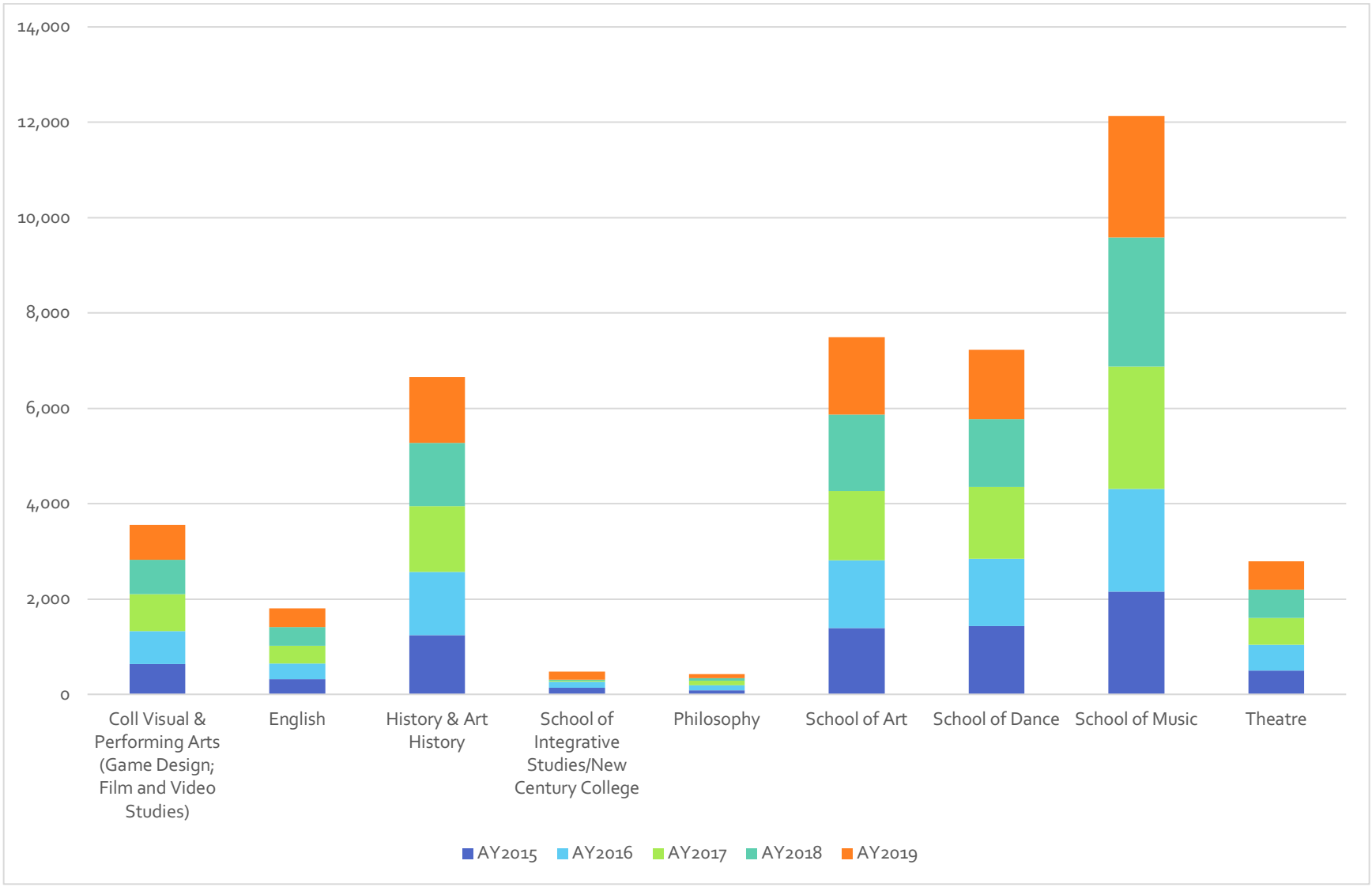
ARTH 101 Introduction to the Visual Arts
ARTH 102 Symbols and Stories in Art
ARTH 103 Introduction to Architecture
ARTH 200 History of Western Art I
ARTH 201 History of Western Art II
ARTH 203 Survey of Asian Art
ARTH 204 Survey of Latin American Art
ARTH 206 Survey of African Art
ARTH 321 Greek Art and Archaeology
ARTH 322 Roman Art and Archaeology
ARTH 324 From Alexander the Great to Cleopatra
ARTH 333 Early Christian and Byzantine Art
ARTH 334 Western Medieval Art
ARTH 335 Arts of Medieval England
ARTH 340 Early Renaissance Art in Italy, 1300-1500
ARTH 341 Northern Renaissance Art
ARTH 342 High Renaissance Art in Italy, 1480-1570
ARTH 344 Baroque Art, 1600-1750
ARTH 345 Northern Baroque Art, 1600-1750
ARTH 350 History of Photography
ARTH 360 Nineteenth-Century European Art
ARTH 362 Twentieth-Century European Art
ARTH 370 Arts of the United States
ARTH 372 Studies in 18th- and 19th-Century Art of the US
ARTH 373 Studies in 20th-Century Art of the US
ARTH 376 Twentieth-Century Latin American Art
AVT 103 Introduction to the Artist's Studio
AVT 104 Two-Dimensional Design and Color
AVT 215 Typography
AVT 222 Drawing I
AVT 232 Painting I
AVT 243 Printmaking I
AVT 252 Darkroom Photography I
AVT 253 Digital Photography I
AVT 262 Sculpture I
AVT 272 Interdisciplinary Arts
AVT 385 EcoArt
DANC 101 Dance Appreciation
DANC 119 Dance in Popular Culture: Afro-Latino
DANC 125 Modern/Contemporary Dance I
DANC 131 Beginning Jazz Technique
DANC 145 Ballet I
DANC 161 Beginning Tap Dance
DANC 225 Modern/Contemporary Dance II
DANC 231 Intermediate Jazz Technique
DANC 245 Ballet II
DANC 301 What is Dance?
DANC 325 Modern/Contemporary Dance III
DANC 331 Advanced Jazz Dance
DANC 345 Ballet III

DANC 390 Dance History I
DANC 391 Dance History II
DANC 425 Modern/Contemporary Dance IV
DANC 445 Ballet IV
ENGH 370 Introduction to Documentary
ENGH 371 Television Studies
ENGH 372 Introduction to Film
ENGH 396 Introduction to Creative Writing
FAVS 225 The History of World Cinema
GAME 101 Introduction to Game Design
INTS 200 Visual Thinking and the Creativity
INTS 245 Visual Culture and Society
INTS 346 Art as Social Action
INTS 446 Art, Beauty, and Culture
MUSI 100 Fundamentals of Music
MUSI 101 Introduction to Classical Music
MUSI 102 Popular Music in America
MUSI 107 Jazz and Blues in America
MUSI 280 Athletic and Ceremonial Ensemble
MUSI 301 Music in Motion Pictures
MUSI 302 American Musical Theater
MUSI 380 Wind Symphony
MUSI 381 University Chorale
MUSI 382 Piano Ensemble
MUSI 383 Symphonic Band
MUSI 385 Chamber Singers
MUSI 387 Symphony Orchestra
MUSI 389 Jazz Ensemble
MUSI 485 Chamber Ensembles
PHIL 156 What Is Art?
THR 101 Theatrical Medium
THR 150 Greeks to Restoration
THR 151 Romanticism to Present
THR 210 Acting I
THR 230 Fundamentals of Production
THR 395 Theater as the Life of the Mind
THR 411 Great Film Directors
THR 412 Great Film Performances

*Table 3. Enrollment in Mason Core Arts Courses by Academic Unit, AY2015-19*

| | AY2015 | | AY2016 | | AY2017 | | AY2018 | | AY2019 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | #Sections | Enroll | #Sections | Enroll | #Sections | Enroll | #Sections | Enroll | #Sections | Enroll |
| Coll Visual & Performing Arts (Game Design; Film and Video Studies) | 17 | 634 | 18 | 696 | 20 | 771 | 19 | 717 | 22 | 736 |
| English | 14 | 318 | 16 | 334 | 18 | 367 | 18 | 395 | 18 | 385 |
| History & Art History | 27 | 1,240 | 31 | 1,333 | 30 | 1,374 | 32 | 1,332 | 31 | 1,380 |
| School of Integrative Studies/New Century College | 6 | 140 | 6 | 121 | 1 | 24 | 1 | 25 | 7 | 169 |
| Philosophy | 2 | 84 | 3 | 104 | 3 | 103 | 2 | 49 | 2 | 85 |
| School of Art | 80 | 1,389 | 82 | 1,420 | 82 | 1,462 | 87 | 1,602 | 86 | 1,618 |
| School of Dance | 56 | 1,437 | 56 | 1,406 | 56 | 1,503 | 56 | 1,423 | 56 | 1,458 |
| School of Music | 70 | 2,154 | 65 | 2,157 | 72 | 2,566 | 75 | 2,706 | 75 | 2,550 |
| Theatre | 23 | 495 | 21 | 543 | 22 | 567 | 26 | 587 | 29 | 603 |
| **TOTAL** | **295** | **7,891** | **298** | **8,114** | **304** | **8,737** | **316** | **8,836** | **326** | **8,984** |

*Figure 5. Five-Year Enrollment Trends in Mason Core Arts Courses, AY2015-19*



# Critical Thinking (Synthesis and Capstone)

## Description and Learning Outcomes

### *Synthesis Courses*

The purpose of the Synthesis course is to provide students with the opportunity to synthesize the knowledge, skills and values gained from the Mason Core curriculum. Synthesis courses strive to expand students' ability to master new content, think critically, and develop life-long learning skills across the disciplines. While it is not feasible to design courses that cover "all" areas of general education, synthesis courses should function as a careful alignment of disciplinary goals with a range of Mason Core learning outcomes.

A Mason Core Synthesis course must address outcomes 1 and 2, and at least one outcome under 3. Upon completing a Synthesis course, students will be able to:

1. Communicate effectively in both oral and written forms, applying appropriate rhetorical standards (e.g., audience adaptation, language, argument, organization, evidence, etc.)
2. Using perspectives from two or more disciplines, connect issues in a given field to wider intellectual, community or societal concerns
3. Apply critical thinking skills to:
    1. Evaluate the quality, credibility and limitations of an argument or a solution using appropriate evidence or resources, OR,
    2. Judge the quality or value of an idea, work, or principle based on appropriate analytics and standards

### *Capstone Courses*

The purpose of the Capstone course or sequence of courses is to provide a high impact, culminating element of an undergraduate education, to help students develop a more comprehensive and integrative understanding of their area of study and to utilize critical thinking skills. Capstone courses provide students opportunities to apply and demonstrate their knowledge and generally involve integrative/applied/experiential projects. Student learning in a Capstone course is assessed using a set of identified learning outcomes, and for critical thinking, as defined by the Association of American Colleges & Universities (AAC&U).

While each academic degree program defines its own learning outcomes, a Capstone course or sequence should follow these guidelines:

- Minimum of 3 credits

- Later in the curriculum, after a student has taken at least 85 credits, and at the 400-course level
- No more than 35 students in the course or equivalent instructional/mentored support
- Emphasis on experiential/applied/integrative learning
- Allow students to apply critical thinking skills
- Learning outcomes defined by the degree program

## Approved Courses and Enrollment

The Capstone was introduced as a Mason Core category in AY2017. Academic units were encouraged to designate appropriate courses for the Capstone using guidance provided by the Mason Core Committee. Students are required to pass either a Synthesis or Capstone course; students enroll in the approved Capstone course for their major. Courses that were approved as Synthesis or Capstone during the assessment period are listed on page 37.

Synthesis courses now enroll over 5,200 students each year with an average class size that ranges from 19 to 30 and varies by school and college (see Table 4). Figure 11 on shows enrollment trends over the past three years by college and school.

Capstone courses now enroll over 3,500 students each year with an average class size that varies by school and college (see Table 5). One-quarter of Capstone courses share a designation with Synthesis. Figure 12 shows enrollment trends over the past three years by college and school.

## Courses Included in Assessment

Synthesis and Capstone courses were chosen for the critical thinking assessment because they share critical thinking as a key learning outcome. These courses are also taught across nearly all of the undergraduate majors, providing for a representative sample of upper-division student work. All Synthesis courses are identified as lecture or seminar courses. Capstone courses are taught as lecture or seminar (69%), internship (21%), or studio (10%).

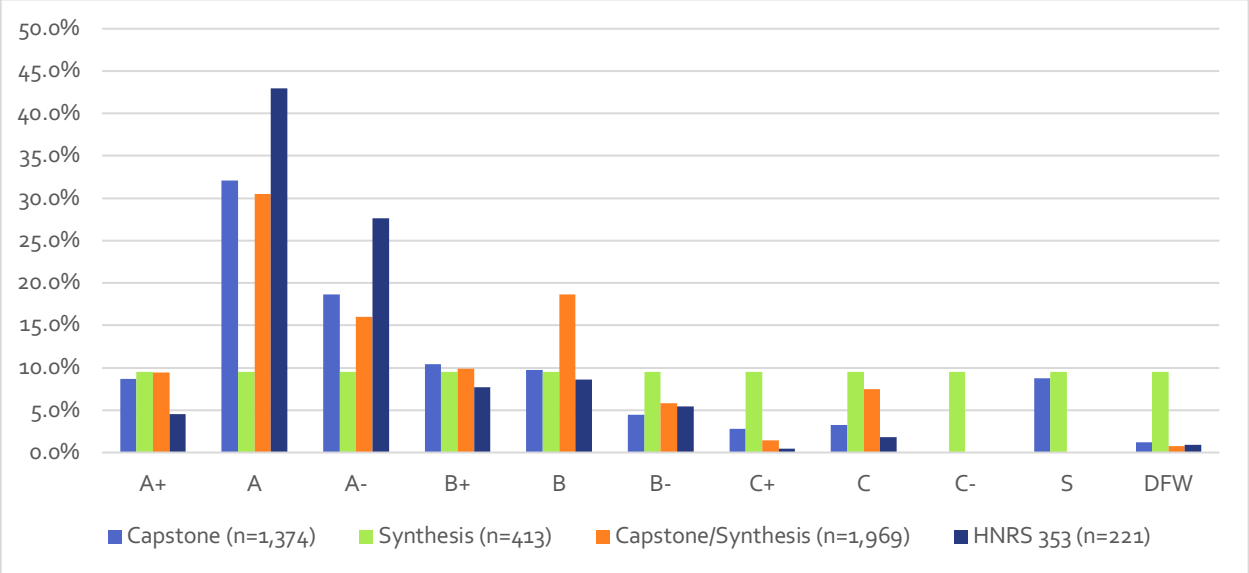
The assessment period included all but 30 sections of the 80 Synthesis and Capstone courses taught in spring 2018, and ten sections of Honors 353 in spring 2019. All courses that were offered in the assessment period were expected to participate, with some exceptions: BUS 498 was excluded because the program contributed data from an assessment conducted in the previous semester using the same method; and three courses were removed from the Mason Core by their departments due to curriculum changes. Of the 150 course sections included in the assessment period, 62% submitted materials.

Students in the Honors College take HNRS 353: Tech in Contemporary World to fulfill their learning outcomes in this category. Although not formally a part of the Mason Core, HNRS 353 is also included in this assessment.

### *Enrollment and Grades Distribution*

A total of 4,004 students enrolled in courses across 53 subjects in the assessment period. Of these students, 96.7% passed their courses with a C- or above, and 86% of students earned A or B grades (see Figure 6).

*Figure 6. Final Grades Distribution in the Assessment Period*




Note: Grades recorded as "incomplete" were not included.

## Assessment Methods

Student work samples were requested from all included course sections taught in the assessment period. Faculty were asked to submit samples that represented submissions completed in the final third part of the semester, and allowed students to demonstrate their critical thinking skills. Samples were selected using randomized course enrollment lists to insure the best possible representative sample.

It should be noted that the Capstone presents a challenge to a fully representative sample for this particular assessment. As the Capstone is meant to be the final academic experience in the major, many programs seek to prepare students for a team-based professional environment. Thus, many Capstones—especially in Business, Engineering, and Performing Arts—are designed as immersive collaborative experiences. Indeed, 36% of the work samples received for this assessment were collaborative projects. Because this assessment was designed to assess individual work, the collaborative samples were excluded. Efforts are underway to address assessment of collaborative work.

The **AAC&U Critical Thinking VALUE Rubric** was used for this assessment. The VALUE Rubric was adopted by a faculty committee in 2010, and has been used in three previous

assessments—in 2010, 2012, and 2014 (George Mason University, 2016). The VALUE rubric is a tool to assess student work on five learning tasks or outcomes (explanation of issues, evidence, influence of context and assumptions, student's position, and conclusion and related outcomes). The rubric uses four performance descriptors: Benchmark, Emerging Milestone, Advanced Milestone, and Capstone, and an option on the scoring form for "no evidence." The performance descriptors are developmental, identifying student performance levels in a context of learning and growth. The rubric is intended to be used across all of the years of a student's college experience, and is not limited to a single course, assignment, or student class level. The VALUE Rubric has been used in a national assessment (McConnell & Rhodes, 2017) of undergraduate work and allows for comparison of results to a national sample.

Using a process modeled after the VALUE Institute reviewer calibration[3], faculty reviewers were trained to use the rubric to assess student work. Reviews were normed to produce consistent ratings across reviewers. Reviewers met for an in-person, one-day training and review session and completed the reviews of student work by the end of the day. A second review was completed in August 2019 with a small set of samples that were received after the first review session. Reviewers were faculty members who have taught Synthesis and Capstone courses and represented a diversity of academic units. Reviewers earned a small stipend for their efforts.

Each student work sample was assessed twice. Results were analyzed for interrater reliability and discrepant reviews were resolved using a third review.

## Learning Outcomes Assessment Results

Figures 7 and 8 display results from 500 ratings. A rating of "no evidence" was used when there was no evidence of the learning outcome; this could mean that either the assignment did not require application of the outcome, or that the student did not demonstrate it. A "no evidence" rating provides important information in aggregate but is given no value for an individual sample.

[3] The VALUE Institute trains volunteer reviewers to read and rate student work using the VALUE rubrics. The extensive training and calibration process promotes high levels of interrater reliability for scoring.

*Figure 7. Assessment Results, Aggregated, including "No Evidence" Ratings*

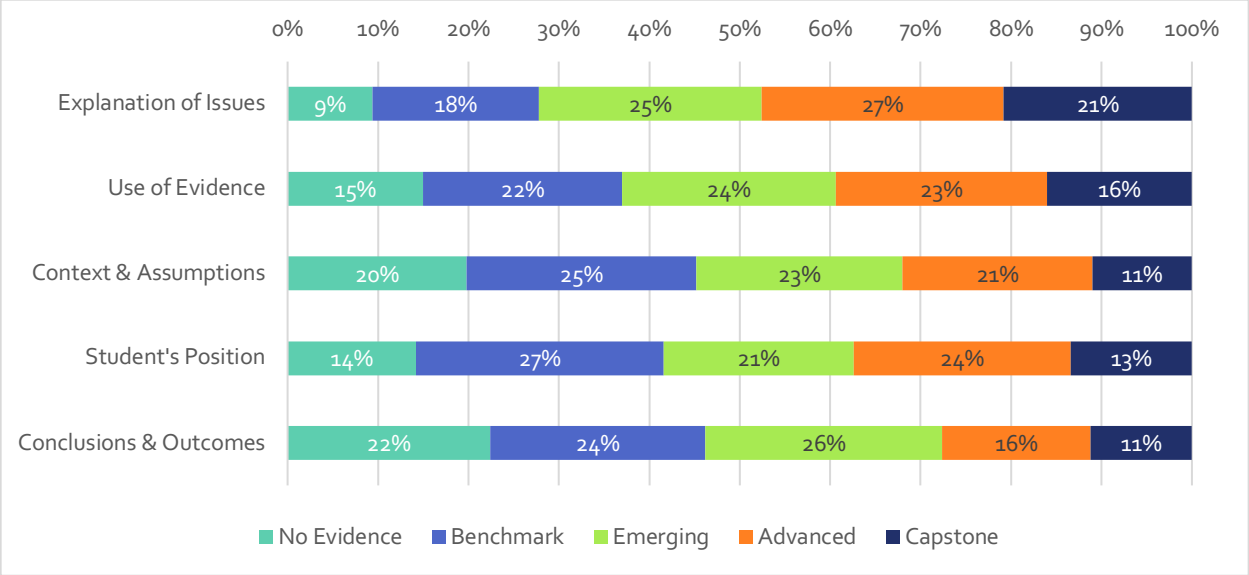
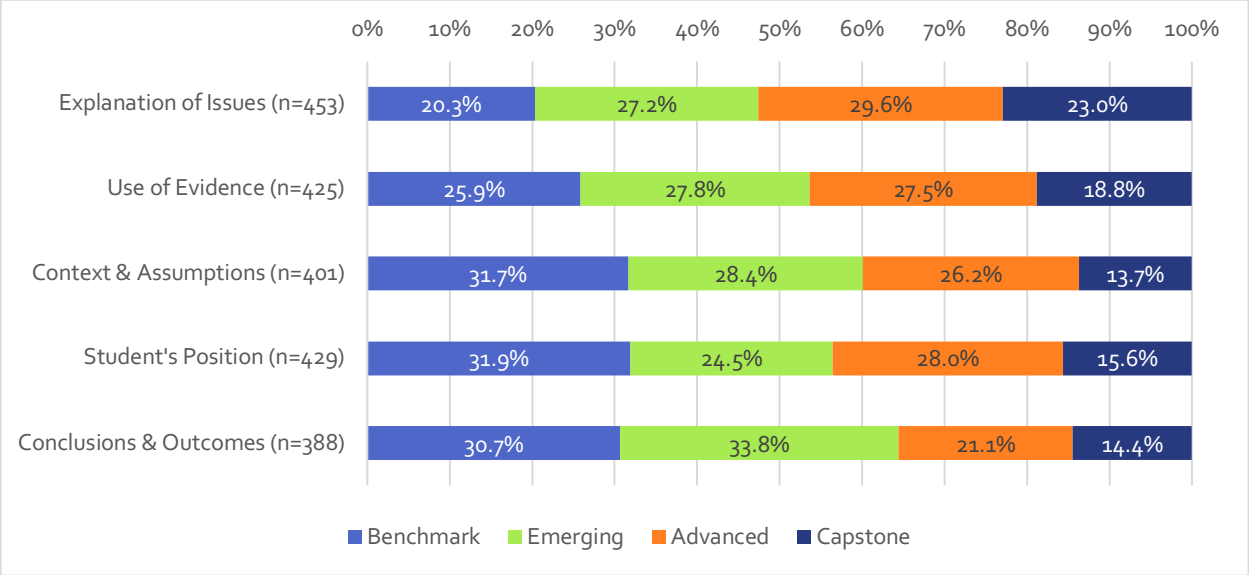



*Figure 8. Assessment Results, Aggregated, excluding "No Evidence" Ratings*




## *Highlights from Analysis of Results*

Results were analyzed to ascertain differences between certain demographic groups (i.e. gender and transfer status). Comparison tests were conducted using nonparametric statistics because rubric data are ordinal; Independent-Samples Mann-Whitney *U*, ($p$ <.05) was used when analyzing differences between two groups, and Kruskal–Wallis *H* test was used when

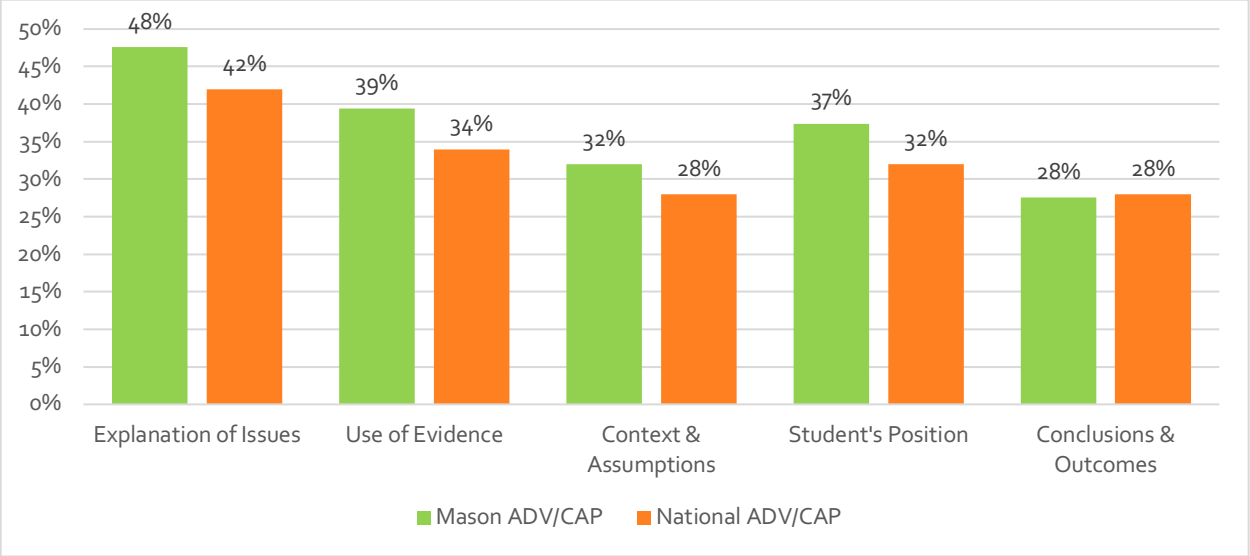
analyzing differences among three or more groups. Significant findings are noted below and in tables 6-9.

- 22% of samples were rated as "no evidence" for the outcome **Conclusions & Outcomes**, meaning that students did not perform this outcome in their sample, or the assignment did not require it. While this seems like a high number, it should be noted that not all forms of scholarly writing require drawing conclusions (e.g. creative writing) (see Figure 7).
- Work samples performed highest overall on **Explanation of Issues** and **Use of Evidence** (see Figure 8).
- There were significant differences in student performance between Synthesis and Capstone courses on the first two outcomes. Capstone samples were rated higher than Synthesis samples on **Explanation of Issues** and **Use of Evidence** (see Table 6).
- Students who started at Mason as freshmen performed equally well as transfer students on all five critical thinking outcomes (see Table 7).
- Students identified as female performed significantly better than students identified as male on three outcomes: **Explanation of Issues, Use of Evidence,** and **Conclusions & Outcomes** (see Table 8).

### *How do Mason Students Compare?*

In comparing results from a 2017 national study (McConnell & Rhodes, 2017) using samples of student work from seniors at 4-year institutions, this assessment suggests that Mason students perform somewhat better than their peers on combined ratings of Advanced + Capstone. It is instructive to note the similarity in patterns between the Mason results and the national data; while results for each outcome differ, the consistent pattern in the comparison is remarkable. Similar to Mason, national data revealed that students were most likely to show strength in **Explanation of Issues** and least likely to show strength in **Conclusions and Outcomes**. Note that this is an observational comparison; the raw data from the national study was not available to perform a statistical comparison. See Figure 9.

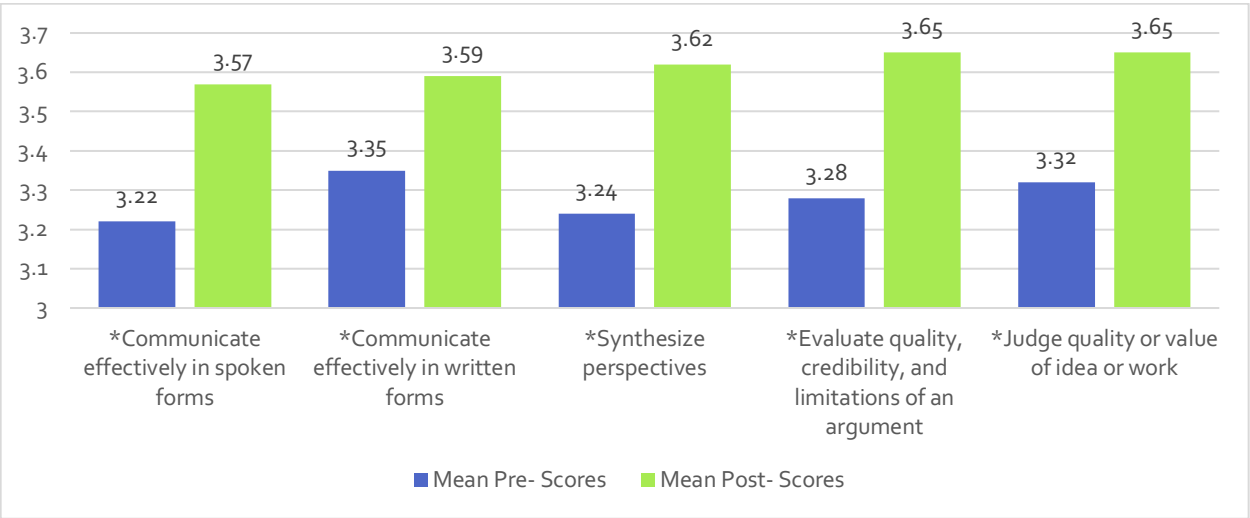
*Figure 9. Mason Student Results Compared to National Results from 4-year Institutions*




## *Student Self-Assessment*

All students who were enrolled in a Synthesis or HNRS 353 course during the assessment period received an online retrospective pre-post self-assessment at the end of the semester. The survey asked students to rate their knowledge and skills on the five critical thinking learning outcomes at the beginning of the semester (pre), and then again at the end of the semester (post). In total, 297 students completed both the pre and post items, resulting in a 13.6% response rate. A t-test pairwise comparison showed significant perceived learning gains on all five outcomes (see Figure 10).

*Figure 10. Mean Scores on Student Learning Self-Assessment for Synthesis Courses*




Mean scores, self-reported on a scale of 1-4, n=297, * $p < .05$

## How do the Results Meet Expectations?

This is the fourth critical thinking assessment using the same method, and the only institution-wide assessment for Mason Core learning outcomes to-date that has been repeated. Thus, there is sufficient data for comparison. A Kruskal–Wallis *H* test used to analyze differences among the four assessment years (2010, 2012, 2014, and 2018) found significant differences among the years for **Explanation of Issues**, **Use of Evidence**, and **Student's Position.** It appeared that students in 2018 performed best overall (see Table 9). Further analysis revealed significant improvement in 2018 over 2010 and 2012, but not over 2014 for the three outcomes. There were no significant differences for the remaining two outcomes.

## How are Results Being Used to Improve Students' Educational Experience?

A series of open meetings (including an online option) were held in fall 2018 to share results. Faculty are consistently interested in the development of critical thinking skills and what these kinds of assessments can tell us about student learning. Mason's current focus is on faculty professional development activities to improve course and assignment design. The Stearns Center for Teaching and Learning offers evidence-based programs such as the Course ReDesign Academy, faculty learning communities, and classroom observations[4] to improve instruction for student learning.

## Limitations and Conclusions

It is important to note the data issues and limitations to the results contained in this report. These limitations are related to the generalizability of the evidence for students' critical thinking skills. First, scores provided in this report reflect student performance on one assignment, at one point in time. Critical thinking abilities are complex, situational, and continually developing. This report is useful in presenting a standardized assessment of student work on assignments across five domains of critical thinking; caution should be taken in interpreting these results as evidence of general or even situational critical thinking skills. Development of critical thinking skills is a process that cannot be sufficiently inferred from a single assignment.

Also, it is important to acknowledge that all of the work used in this assessment was in written form. Other modes of demonstration (i.e. oral, interpersonal) may be more illustrative of critical thinking ability, especially in particular disciplines or situations. Our reviewers often struggled with sorting out the critical thinking competency from the ability of the student to adequately express ideas through writing.

Second, assignments for each course were identified by the course instructor, so student performance was constrained by the requirements of the assignment. Many faculty members have been exposed to the rubric over the years and have had opportunity to create course

[4] https://stearnscenter.gmu.edu/programs/stearns-center-opportunities/

assignments or activities to specifically address the learning outcomes identified in the rubric; however, they were not required to design an assignment to address the rubric. The mismatch of assignment design to student product for the assessment may not have allowed a student to demonstrate critical thinking skills on all parts of the rubric. At this point, however, the substantial size of aggregated results does allow us to see patterns in student performance. In addition, we can interpret the findings to suggest that improved instruction is necessary for certain outcomes, specifically **Context and Assumptions** and **Conclusions and Related Outcomes**.

In consideration of the data limitations, it is essential that we understand the results in context with other institutions with similar student characteristics and academic programs. The McConnell & Rhodes (2017) study allows us to identify Mason students' competencies and needs for development in comparison with other institutions. Faculty and programs can use these results to improve assignment and course design to emphasize the development of critical thinking in Synthesis and Capstone courses and throughout the curriculum. Faculty should adapt the tool to terms and processes used in their own disciplinary and interdisciplinary contexts.

## Assessment Rubric(s)

## Synthesis and Capstone Courses Approved for the Assessment Period

### *Synthesis*

ANTH 400 Engaging the World: Anthropological Perspectives
ARTH 394 The Museum
AVT 385 EcoArt
AVT 497 Senior Project
AVT 498 Senior Design Project
BENG 492 Senior Advanced Design Project I
BENG 493 RS: Senior Advanced Design Project II
BINF 354 Foundations in Mathematical Biology
BIOL 301 Biology and Society
BIS 490 RS: Senior Project
CEIE 490 Senior Design Project
COMM 326 Rhetoric of Social Movements and Political Controversy
COMM 362 Argument and Public Policy
COMM 454 Free Speech and Ethics
CONF 490 RS: Integration
CONS 490 RS: Integrated Conservation Strategies
CONS 491 RS: Conservation Management Planning
CRIM 495 Capstone in Criminology, Law and Society
CS 306 Synthesis of Ethics and Law for the Computing Professional
DANC 490 Senior Dance Seminar
ECE 492 Senior Advanced Design Project I
ECE 493 RS: Senior Advanced Design Project II
ECON 309 Economic Problems and Public Policies
EDCI 490 Student Teaching in Education
EVPP 480 Sustainability in Action
FAVS 352 Ethics of Film and Video
FRLN 385 Multilingualism, Identity, and Power
GAME 490 Senior Game Design Capstone
GEOL 420 Earth Science and Policy
GGS 303 Geography of Resource Conservation
GGS 304 Population Geography
GOVT 490 Synthesis Seminar
GOVT 491 Honors Seminar
HAP 465 Integration of Professional Skills and Issues
HDFS 400 Advanced Family Processes
HIST 300 Introduction to Historical Method
HIST 499 RS: Senior Seminar in History
HNRS 353 Technology in the Contemporary World (Topic Varies)
INTS 308 American Landscapes in Fiction, Film, and History
IT 492 Senior Design Project I
LAS 499 Research Seminar in Latin American Studies
MATH 400 History of Math (Topic Varies)
NURS 465 Examination and Integration of Professional and Health Care Issues
PHIL 309 Bioethics
PHIL 343 Topics in Environmental Philosophy
PHIL 377 Darwin: Biology and Beyond
PHIL 378 Reason, Science and Faith in the Modern Age
PHIL 379 Perspectives on Time
PHYS 346 Quarks to Strings
PROV 342 The George Mason Debates in Current Affairs
PSYC 405 Mystery, Madness, and Murder
PSYC 406 Psychology of Communication
PSYC 427 Community Engagement for Social Change
RELI 490 Comparative Study of Religions
RUSS 353 Russian Civilization
SOCI 377 Art and Society
SOCI 483 The Sociology of Higher Education
SOCW 375 Human Behavior and the Family Life Course
SPAN 388 Introduction to Latina/o Studies
SYST 495 Senior Design Project II
THR 440 Advanced Studies in Directing/Dramaturgy

THR 496 Text in Production

## *Capstone*

ARAB 351 Media Arabic II (Spoken Media)
ARAB 440 Topics in Arabic Religious Thought and Texts
ASTR 402 RS: Methods of Observational Astronomy
ATEP 441 Senior Seminar in Athletic Training
AVT 497 Senior Project
AVT 498 Senior Design Project
BAS 491 Applied Sciences Capstone
BENG 492 Senior Advanced Design Project I
BENG 493 RS: Senior Advanced Design Project II
BIOL 379 RS: Ecological Sustainability
BUS 498 Capstone Course: Advanced Business Models
CEIE 490 Senior Design Project
CHIN 318 Introduction to Classical Chinese
CHIN 355 Readings in Chinese Poetry and Poetics
CHIN 475 Chinese Popular Culture
CYSE 493 Senior Advanced Design Project II
ECE 492 Senior Advanced Design Project I
ECE 493 RS: Senior Advanced Design Project II
ENGH 401 RS: Honors Thesis Writing Seminar
ENGH 417 RS: Topics in Folklore Research
ENGH 458 RS: Topics in Literary Research
ENGH 470 RS: Topics in Film/Media History
ENGH 484 RS: Writing Ethnography
ENGH 486 RS: Writing Nonfiction for Publication
ENGH 495 Capstone and Thesis
EVPP 378 RS: Ecological Sustainability
FAVS 496 Advanced Visual Storytelling
FAVS 497 Senior Film Practicum
FAVS 499 Senior Project
GAME 490 Senior Game Design Capstone
GCH 465 Community Health Capstone
GLOA 400 Global Affairs Capstone
HAP 489 Pre-Internship Seminar
HAP 498 Health Administration Internship
IT 492 Senior Design Project I
IT 493 Senior Design Project II
KINE 490 Kinesiology Internship III
ME 444 Mechanical Design II
MUSI 324 Junior Recital
MUSI 424 Senior Recital
MUSI 490 RS: Musical Communication in Context
MUSI 491 Musical Communication in Performance
MUSI 495 Internship in Music Education
PHED 415 Student Teaching in Physical Education
PHIL 421 Seminar
PHIL 422 Honors Seminar
PHYS 407 Senior Laboratory in Modern Physics
PRLS 490 Recreation Management Internship
RHBS 499 Senior Capstone in Rehabilitation Science
SOCI 485 RS: Sociological Analysis and Practice
SOCW 472 RS: Integrative Methods in Social Action and Social Change
SPMT 490 Internship
STAT 490 Capstone in Statistics
SYST 495 Senior Design Project II
TOUR 490 Hospitality, Tourism, and Events Management Internship

*Table 4. Enrollment in Synthesis Courses by College/School, AY2015-19*

| | AY2015 | | AY2016 | | AY2017 | | AY2018 | | AY2019 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | #Course Sections | Enroll | #Course Sections | Enroll | #Course Sections | Enroll | #Course Sections | Enroll | #Course Sections | Enroll |
| **Business** | 23 | 791 | 25 | 828 | 25 | 863 | | | | |
| **Conflict Analysis and Resolution** | 4 | 53 | 4 | 72 | 4 | 51 | 3 | 62 | 4 | 64 |
| **Education and Human Development** | 19 | 140 | 20 | 163 | 15 | 144 | 3 | 40 | 3 | 49 |
| **Health and Human Services** | 28 | 592 | 28 | 605 | 22 | 455 | 22 | 456 | 21 | 422 |
| **Humanities and Social Sciences** | 121 | 2,856 | 98 | 2,704 | 109 | 2,727 | 94 | 2,515 | 79 | 2,322 |
| **Provost** | 1 | 14 | 4 | 50 | 4 | 36 | 3 | 29 | 16 | 337 |
| **SCHAR** | 8 | 200 | 10 | 214 | 11 | 233 | 13 | 252 | 12 | 238 |
| **Science** | 17 | 520 | 19 | 509 | 20 | 492 | 21 | 495 | 23 | 466 |
| **Visual and Performing Arts** | 27 | 290 | 19 | 262 | 22 | 341 | 17 | 309 | 15 | 280 |
| **Volgenau** | 30 | 815 | 27 | 720 | 26 | 893 | 29 | 931 | 38 | 1,065 |
| **TOTAL** | **278** | **6,271** | **254** | **6,127** | **258** | **6,235** | **205** | **5,089** | **211** | **5,243** |

*Figure 11. Enrollment Trends in Synthesis Courses by College/School, AY2015-19*

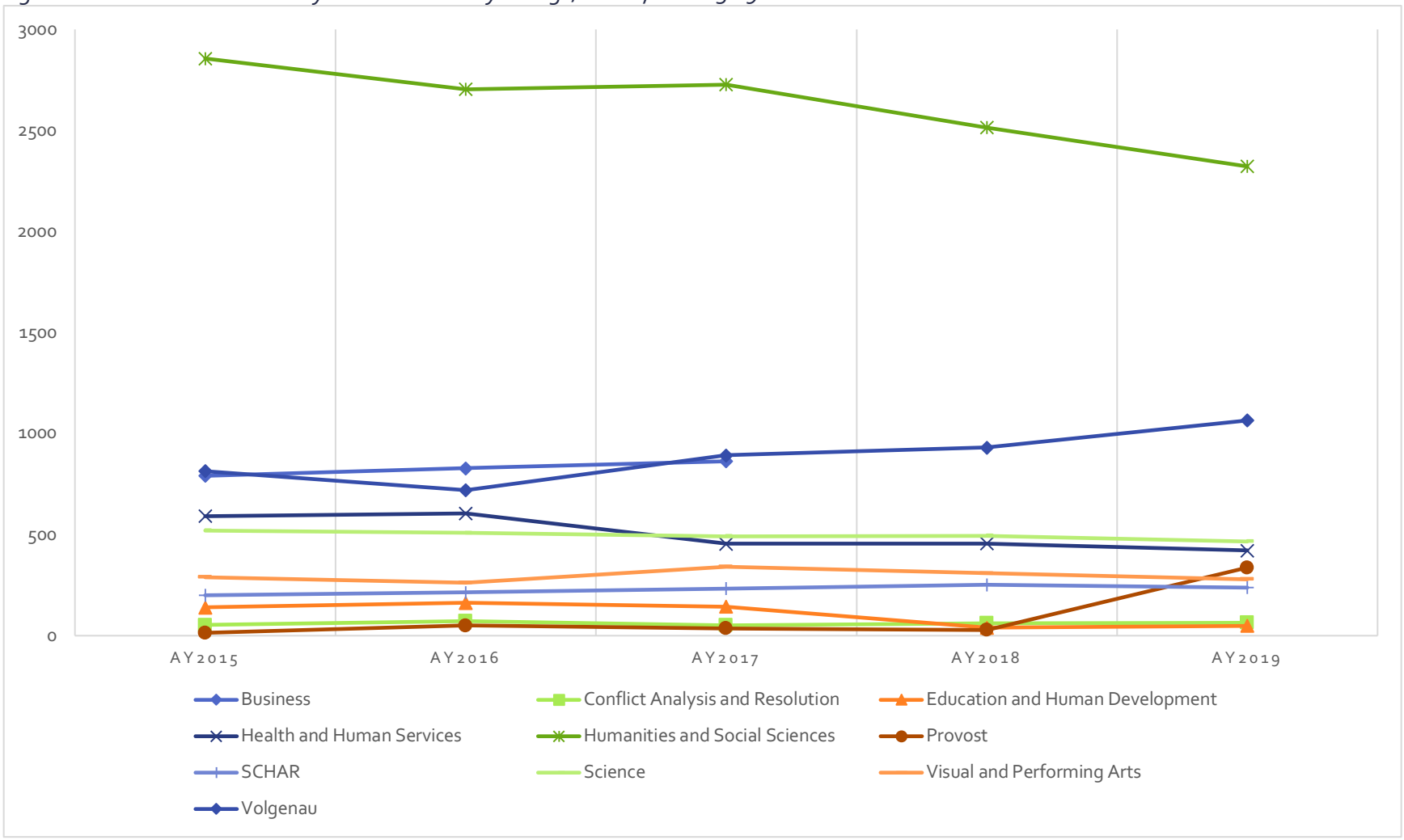


*Table 5. Enrollment in Capstone Courses by College/School, AY2017-19*

| | AY2017 | | AY2018 | | AY2019 | |
|---|---|---|---|---|---|---|
| | #Course Sections | Enroll | #Course Sections | Enroll | #Course Sections | Enroll |
| **Business** | 21 | 732 | 31 | 1,027 | 30 | 1,012 |
| **Conflict Analysis and Resolution** | | | | | | |
| **Education and Human Development** | 14 | 135 | 27 | 216 | 28 | 223 |
| **Health and Human Services** | 19 | 427 | 23 | 523 | 24 | 494 |
| **Humanities and Social Sciences** | 26 | 268 | 28 | 278 | 32 | 289 |
| **Provost** | 2 | 0 | 3 | 7 | 5 | 33 |
| **SCHAR** | | | | | | |
| **Science** | 2 | 15 | 1 | 13 | | |
| **Visual and Performing Arts** | 46 | 342 | 38 | 326 | 28 | 311 |
| **Volgenau** | 30 | 912 | 34 | 1,013 | 48 | 1,208 |
| **TOTAL** | **160** | **2,831** | **185** | **3,403** | **195** | **3,570** |

*Figure 12. Enrollment Trends in Capstone Courses by College/School, AY2017-19*

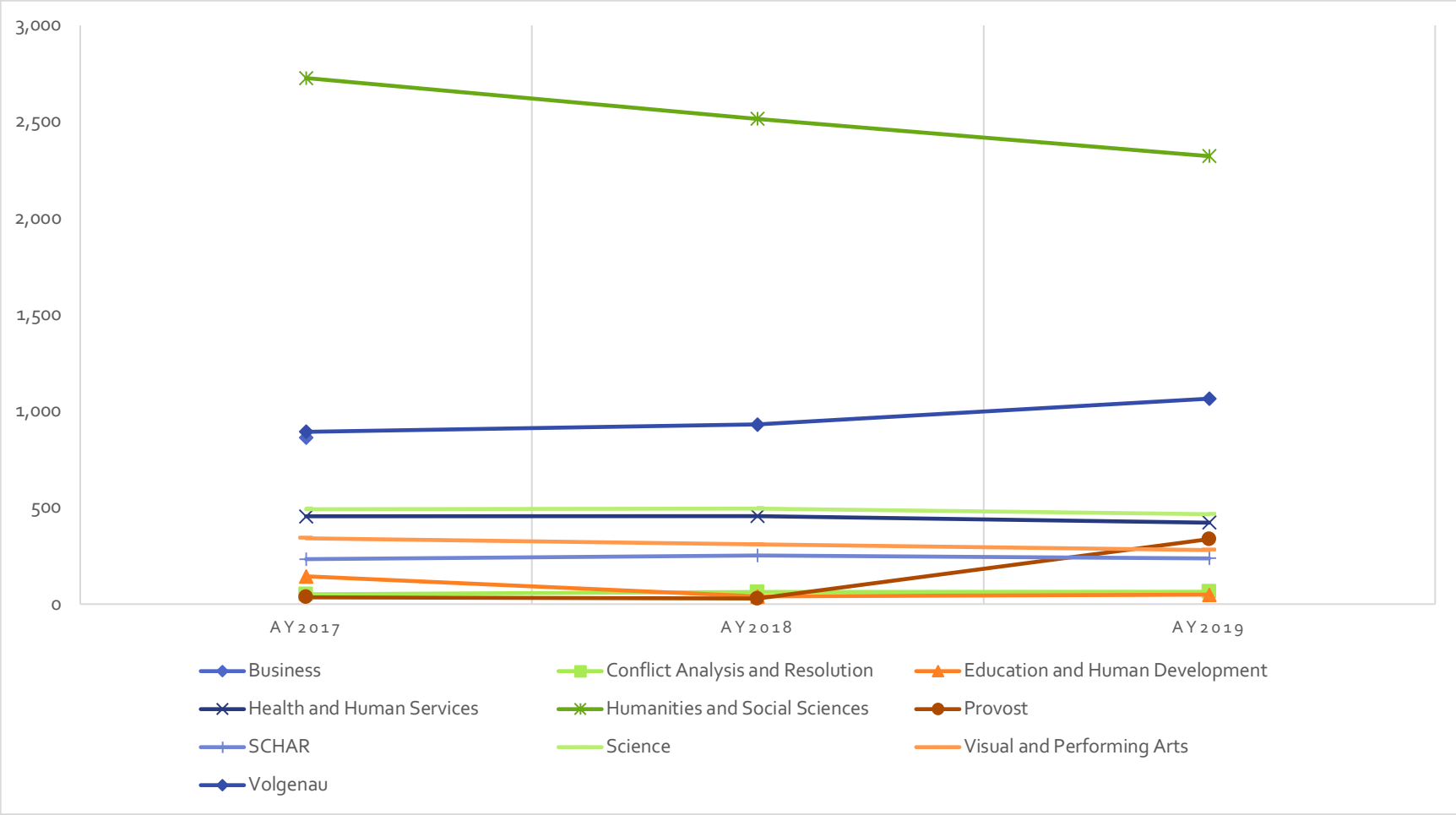


*Table 6. Mann-Whitney U Test: Comparison by Category*

| | Mean Rank (n) | | | | | |
|---|---|---|---|---|---|---|
| | **Capstone** | **Synthesis** | ***U*** | **Z** | ***p*** | **Sig.** |
| **Explanation of Issues** | 235.86 (107) | 209.44 (324) | 15208.5 | -1.969 | 0.049 | * |
| **Use of Evidence** | 223.6 (90) | 196.45 (314) | 12231 | -2.013 | 0.044 | * |
| **Context & Assumptions** | 194.61 (93) | 189.84 (288) | 13056.5 | 0.706 | 0.706 | |
| **Student's Position** | 221.71 (99) | 198.31 (308) | 13492 | -1.789 | 0.074 | |
| **Conclusions & Outcomes** | 199.37 (92) | 180.23 (277) | 11420 | -1.554 | 0.12 | |

*Table 7. Mann-Whitney U Test: Comparison by Transfer Status*

| | Mean Rank (n) | | | | | |
|---|---|---|---|---|---|---|
| | **Freshman** | **Transfer** | ***U*** | **Z** | ***p*** | **Sig.** |
| **Explanation of Issues** | 221.39 (207) | 223.47 (237) | 24759 | 0.176 | 0.860 | |
| **Use of Evidence** | 208.28 (195) | 209.63 (222) | 21785 | 0.118 | 0.906 | |
| **Context & Assumptions** | 194.08 (180) | 198.55 (212) | 19515 | 0.405 | 0.686 | |
| **Student's Position** | 206.12 (200) | 214.48 (220) | 22876 | 0.732 | 0.464 | |
| **Conclusions & Outcomes** | 186.86 (171) | 193.48 (209) | 18492 | 0.61 | 0.542 | |

*Table 8. Mann-Whitney U Test: Comparison by Gender*

| | Mean Rank (n) | | | | | |
|---|---|---|---|---|---|---|
| | **Female** | **Male** | ***U*** | **Z** | ***p*** | **Sig.** |
| **Explanation of Issues** | 240.39 (263) | 208.46 (263) | 21463 | -2.651 | 0.008 | * |
| **Use of Evidence** | 227.84 (247) | 192.40 (178) | 18317 | -3.037 | 0.002 | * |
| **Context & Assumptions** | 209.32 (236) | 189.10 (165) | 17506.5 | -1.788 | 0.074 | |
| **Student's Position** | 224.21 (251) | 202.02 (178) | 20028.5 | -1.897 | 0.058 | |
| **Conclusions & Outcomes** | 208.71 (222) | 175.5 (166) | 15272 | -3.008 | 0.003 | * |

*Table 9. Kruskal Wallis H Test: Comparison by Assessment Year*

| | 2010 | | 2012 | | 2014 | | 2018 | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Mean Rank** | **n** | **Mean Rank** | **n** | **Mean Rank** | **n** | **Mean Rank** | **n** | ***H*** | **Sig.** |
| **Explanation of Issues** | 585.07 | 245 | 522.95 | 245 | 603.55 | 266 | 652.45 | 446 | 24.862 | 0.000* |
| **Use of Evidence** | 527.02 | 243 | 524.75 | 218 | 575.56 | 249 | 599.17 | 417 | 12.591 | 0.006* |
| **Context & Assumptions** | 562.84 | 245 | 521.89 | 235 | 569.35 | 251 | 582.19 | 393 | 5.748 | 0.125 |
| **Student's Position** | 563.14 | 235 | 505.06 | 237 | 578.33 | 250 | 612.13 | 422 | 17.710 | 0.001* |
| **Conclusions & Outcomes** | 526.22 | 240 | 531.23 | 237 | 558.32 | 247 | 578.58 | 380 | 5.881 | 0.118 |

Total N =1,202; df, 3; sig. $p < .05$

# Global Understanding

## Description and Learning Outcomes

The goal of the Global Understanding category is to help students see the world from multiple perspectives, reflect upon their positions in a global society, and be prepared for future engagement as global citizens. While it may include a historical perspective, Global Understanding courses focus primarily on a contemporary understanding of one's place in a global society.

Courses in this category must meet a minimum of three of the following learning outcomes:

1. **Diverse Perspectives:** Identify and articulate one's own values and how those values influence their interactions and relationships with others, both locally and globally.
2. **Understanding Global Systems:** Demonstrate understanding of how the patterns and processes of globalization make visible the interconnections and differences among and within contemporary global societies.
3. **Intercultural Competence:** Demonstrate the development of intercultural competencies.
4. **Global Problem Solving:** Explore individual and collective responsibilities within a global society through analytical, practical, or creative responses to problems or issues, using resources appropriate to the field.

## Approved Courses and Enrollment

Students are required to pass one course approved for Global Understanding or transfer in an appropriate course. Global Understanding courses enroll over 10,000 students each year with an average class size of 34 (see Table 12). It should be noted that average course sizes vary widely by school/college, with the smallest class sizes offered in Conflict Analysis and Resolution (ave = 24) and Volgenau (ave = 25), and the largest in the Schar School of Policy and Government (ave = 75) and Science (ave = 59). Global Understanding courses are offered at all levels (100-400 course numbers). Figure 21 shows enrollment trends over the past five years.

Students in the Honors College take HNRS 131: Contemporary Social Issues to fulfill their learning outcomes in this category. Although not formally a part of the Mason Core, HNRS 131 is also included in this assessment.

## Courses Included in Assessment

The assessment period included 123 course sections taught in fall 2017, three sections taught at Mason Korea in fall 2018, eight sections of Honors 131 in fall 2018, and two sections of INTS 303 taught in spring 2019. Of the total enrollment, 71 percent were enrolled in lower-division (100-200 level) courses (see Table 10). All sections offered in the assessment period were expected to participate. Of the 136 course sections included in the assessment period, 75% submitted materials.

*Table 10. Mason Core Global Understanding Course Enrollment in Assessment Period*

| | #Sections | Enrollment | % Total Enrollment |
|---|---|---|---|
| Lower Division (100-200 level) | 87 | 3,483 | 71.3% |
| Upper Division Section (300-400 level) | 49 | 1,404 | 28.7% |
| **TOTAL** | **136** | **4,887** | |

Six courses accounted for 47% of the Global Understanding enrollment in the assessment period and 42.6% of the samples included in the assessment (see Table 11). Three courses (BUS 200, GCH 205, and GLOA 101) are slightly overrepresented in the sample, and three courses (GGS 101, RELI 100, and GOVT 133) are underrepresented.

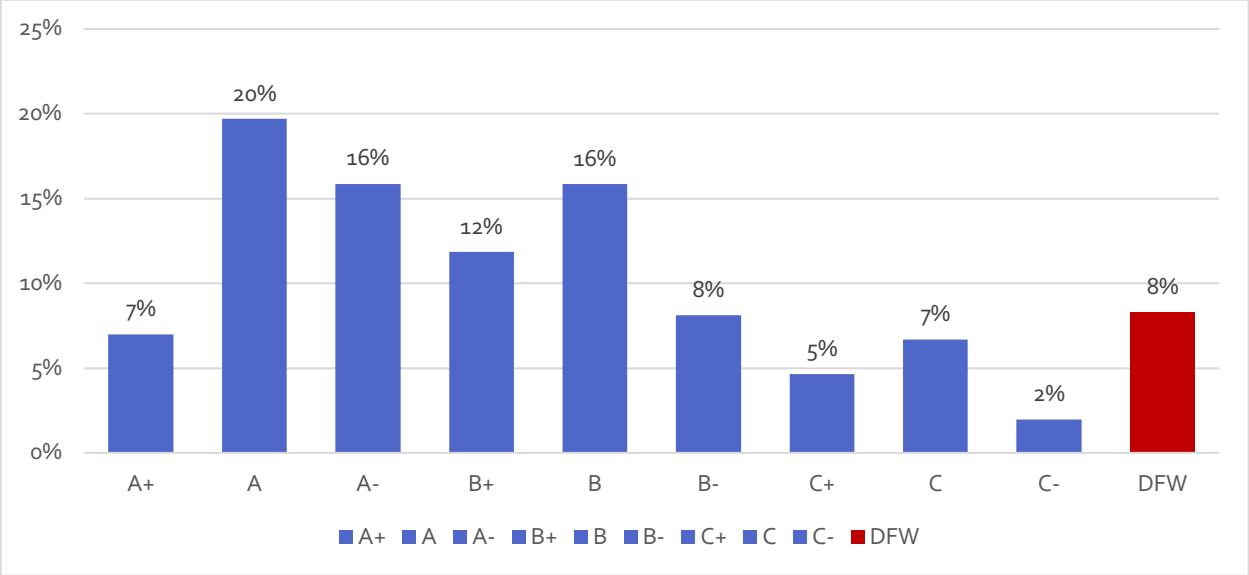
*Table 11. Mason Core Global Understanding Top Six Enrolled Courses in Assessment Period*

| Course | % Global Understanding Course Enrollment | % Work Samples in Assessment |
|---|---|---|
| BUS 200 | 13.3% | 16.5% |
| GCH 205 | 8% | 9.6% |
| GGS 101 | 7.6% | 1.5% |
| GLOA 101 | 6.7% | 9.4% |
| RELI 100 | 5.8% | 2.9% |
| GOVT 133 | 5.6% | 2.7% |

## *Enrollment and Grades Distribution*

There were 4,887 students enrolled in Global Understanding courses in the assessment period. Of these, 30 chose to audit their course, resulting in 4,857 students ending the semester with a grade or "W". Ninety-two percent of these students earned a passing grade (see Figure 13).

*Figure 13. Grades Distribution for Global Understanding Courses in the Assessment Period*




## Assessment Methods

Student work samples were requested from all course sections taught in the assessment period. Faculty were asked to submit samples that represented student submissions completed in the final third part of the semester and that allowed students to demonstrate their learning on one or more of the expected course learning outcomes. Samples were selected using randomized course enrollment lists to insure the best possible representative sample.

The **Mason Core Rubric for Evaluating Student Work in Global Understanding** was used for this assessment. The rubric was adapted from the Global Learning VALUE rubric (AAC&U, 2014) by Mason faculty as a tool to assess individual student work on four learning tasks or outcomes. The rubric uses four performance descriptors: Benchmark, Emerging Milestone, Advanced Milestone, and Capstone, as well as an option for "no evidence." The performance descriptors are developmental, identifying student performance levels in a context of learning and growth. The rubric is intended to be used across all of the years of a student's college experience, and is not limited to a single course, assignment, or student class level.

Using a process modeled after the VALUE Institute reviewer calibration, faculty reviewers were trained to use the rubric to assess student work. Reviews were normed to produce consistent ratings across reviewers. Reviewers met for an in-person, one-day training and review session and completed the reviews of student work by the end of the day. Reviewers were faculty members who have taught Global Understanding courses. Reviewers earned a small stipend for their efforts. A second review was conducted in August 2019 with some of the original reviewers.

Each student work sample was assessed twice. Results were analyzed for interrater reliability; discrepant reviews were resolved using a third review.

## Learning Outcomes Assessment Results

Figures 14 and 15 display aggregate results from 679 ratings. Figure 14 includes "no evidence" ratings. A rating of "no evidence" was used when the learning outcome could not be seen in the sample; this could mean that either the assignment did not require application of the outcome, or that the student did not demonstrate it. A "no evidence" rating provides important information in aggregate but is given no value for an individual sample. Figure 15 displays aggregate results excluding "no evidence" ratings.

*Figure 14. Assessment Results, Aggregated, including "No Evidence" Ratings*

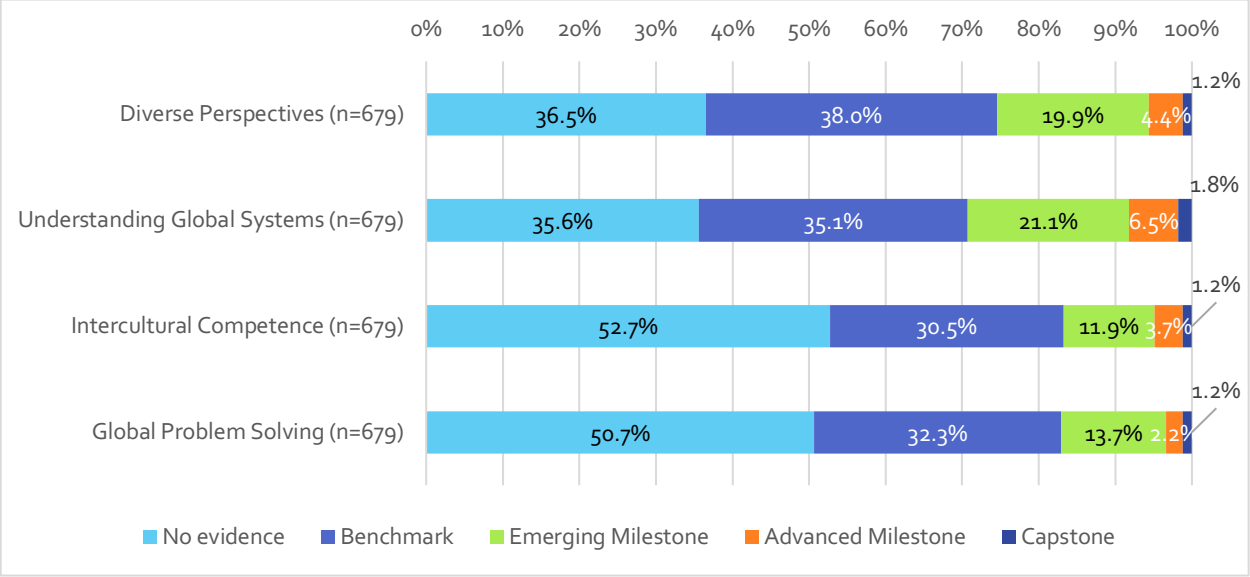
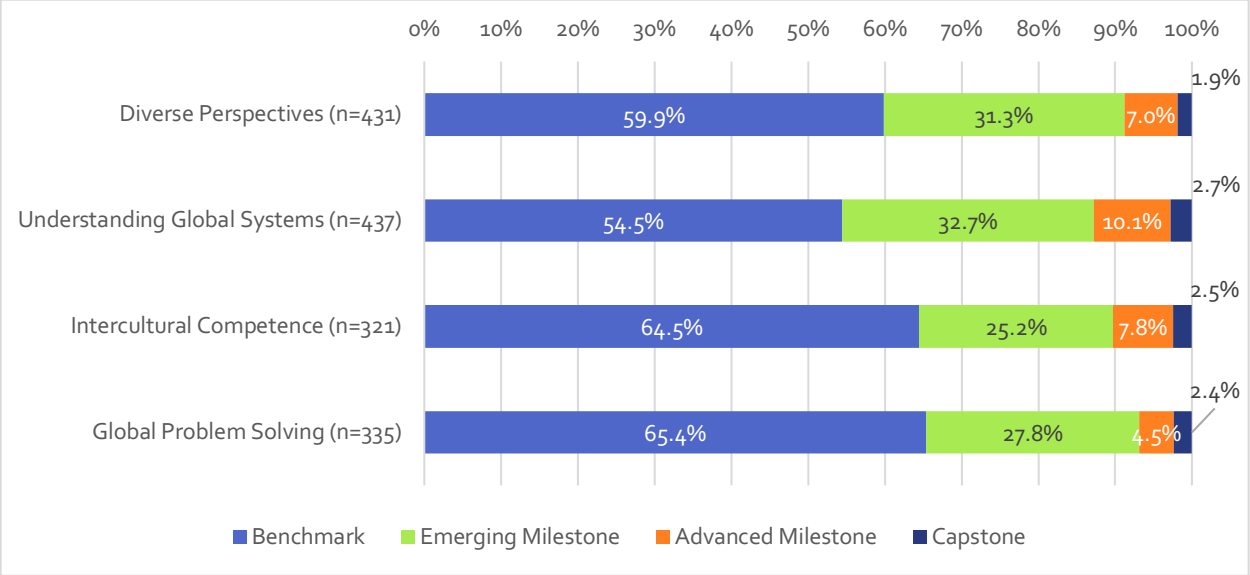


*Figure 15. Assessment Results, Aggregated, excluding "No Evidence" Ratings*




Figures 16-19 display ratings by learning outcome, disaggregated by lower- versus upper-division levels. Analytical comparisons are made in the next section.

*Figure 16. Diverse Perspectives*

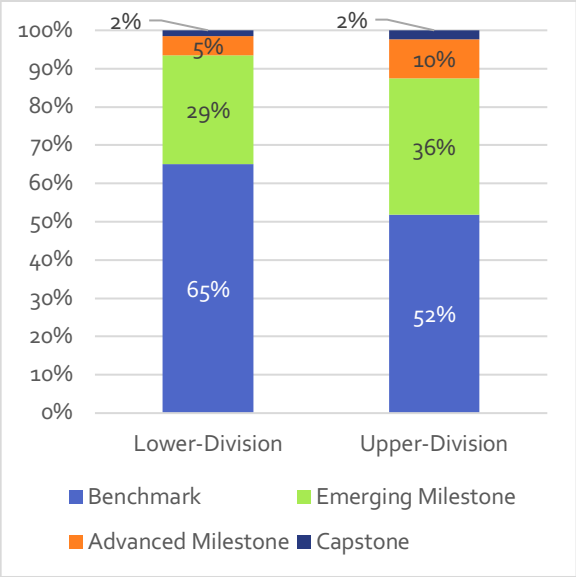



*Figure 17. Understanding Global Systems*

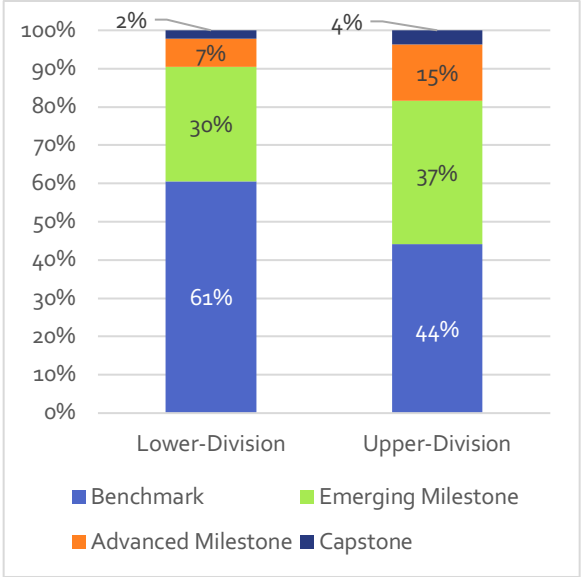


*Figure 18. Intercultural Competence*

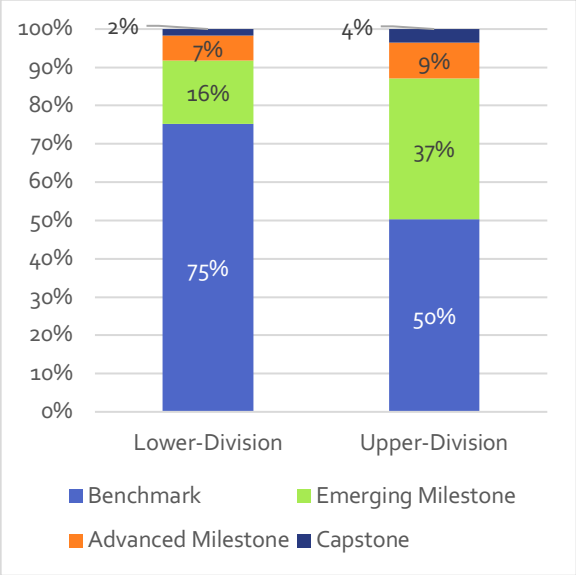
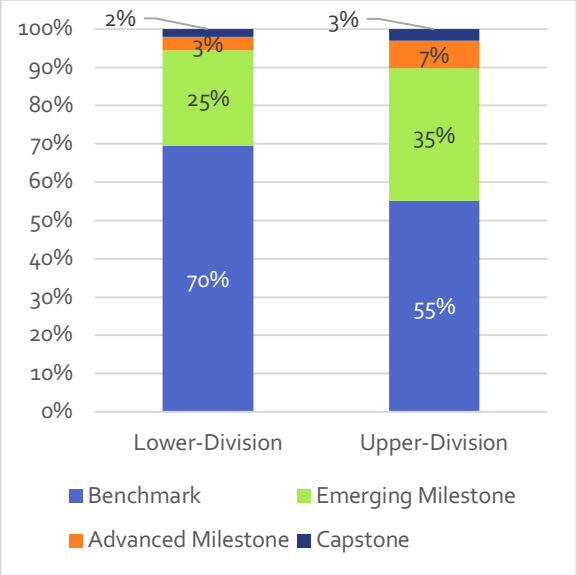



*Figure 19. Global Problem Solving*




## *Highlights from Analysis of Results*

Data were analyzed to ascertain differences among courses in achieving the four learning outcomes. Comparison tests were conducted using nonparametric statistics because rubric data are ordinal; Independent-Samples Mann-Whitney *U*, ($p$ <.05) was used when analyzing differences between two student groups or courses, and Independent-Samples Kruskal–Wallis *H* test was used to analyze differences across three or more student groups or courses. Significant findings ($p$ <.05) are noted below.

- While samples are not expected to show evidence of all four learning outcomes, the percentage of aggregate "no evidence" ratings for each outcome is notably high (35.5 - 52.7%) (see Figure 14). Additionally, fifty-five samples showed no evidence of any of the four learning outcomes.
- The two outcomes most in evidence in the samples were **Diverse Perspectives** and **Understanding Global Systems**.
- When the outcome was in evidence, more than half to two-thirds of samples were rated at the Benchmark level.
- When samples were disaggregated between lower- and upper-division courses, results show that samples from upper-division courses performed higher on all of the learning outcomes, when the outcome was in evidence (see Figures 16-19).

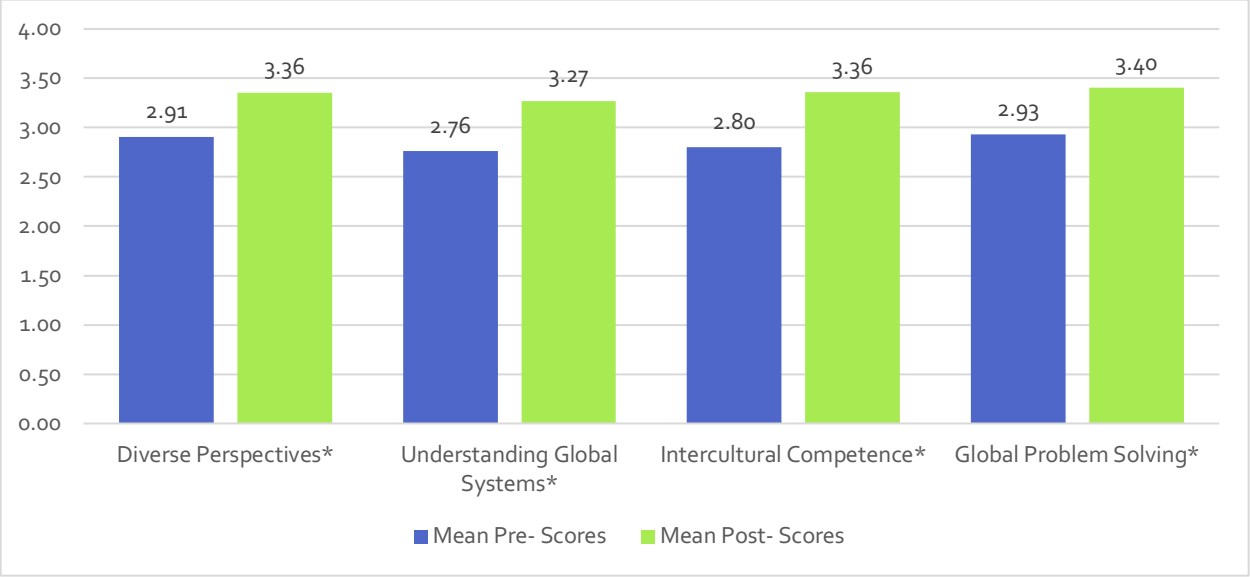
The three courses with the most samples in the assessment (BUS 200, n=112; GCH 205, n=65; GLOA 101, n=64) were compared. There were significant differences on outcomes 1 and 4.

- **Diverse Perspectives.** GLOA 101 samples were rated higher than BUS 200 and GCH 205 when the outcome was in evidence. There were no differences between BUS 200 and GCH 205.
- **Understanding Global Systems.** There were no differences among the courses when the outcome was in evidence.
- **Intercultural Competence.** There was no evidence of this outcome in BUS 200 samples; there was no difference between GCH 205 and GLOA 101.
- **Global Problem Solving.** GCH 205 samples were rated higher than BUS 200 and GLOA 101.

### *Student Self-Assessment*

All students who were enrolled in a Global Understanding course during the assessment period received an online self-assessment survey at the end of the semester. The retrospective pre-post self-assessment asked students to rate their knowledge and skills on six learning outcomes at the beginning of the semester (pre), and then again at the end of the semester (post). In total, 498 students completed both the pre and post items, resulting in a 10.2% response rate. A t-test pairwise comparison showed significant perceived learning gains on all six outcomes (see Figure 20).

*Figure 20. Mean Scores on Student Learning Self-Assessment*




Mean scores, self-reported on a scale of 1-4, n=498, $p < .05$

## How do the Results Meet Expectations?

### *How to assess learning in Global Understanding?*

Because this was the first time that Mason used this rubric to assess student work, these data provide baseline information. Given that 71% of students take a Global Understanding course at the lower-division level, it is unsurprising that their work samples were rated at the lower levels of the rubric. Also, faculty offered that an upper-division course number does not necessarily signal a higher level of performance for these particular learning outcomes; for instance, a student taking MUSI 431 may have extensive experience in music but understanding global systems may be novel. Indeed, we may expect higher performance from students who have substantive curricular or co-curricular experiences in these areas.

*Does the rubric work?* The learning outcomes for this category are defined as broad statements that represent complex fields of scholarship and pedagogy. The current courses in the Global Understanding category span a wide array of content across the disciplines at Mason, from International Business to Religions of Asia to Bollywood Dance. While the rubric is a valid explication of the broad learning outcomes, it does not adequately delineate the complexities of learning within each of those broad outcomes. For example, AAC&U offers distinct rubrics for Global Learning (2014), Intercultural Knowledge and Competence (2009), and Problem-Solving (2009). Thus, while Mason's rubric provides a broad scope, it does not appear adequate to measure the complex learning tasks across this diverse course selection.

## How are Results Being Used to Improve Students' Educational Experience?

A series of open meetings (including an online option) were held in February 2018 to share results. Faculty participants expressed concern that there seems to be a misalignment of the Global Understanding category, outcomes, and courses. While the courses vary widely in content and focus, the category's learning outcomes and rubric reflect only certain kinds of course content; that is, content that is mainly situated in the present, that is transnational or transregional, and comparative. It was agreed that the university does not provide a common definition of "global," which may be partly responsible for the misalignment. Faculty generally agreed that changes are needed: either the courses need to be better aligned to the outcomes, or the category should be changed to better reflect the student and faculty experience.

Faculty participants offered a few suggestions about how to move forward with making changes to the Global Understanding category. One suggestion was to consider adopting principles from the "non-western culture" course requirement[5] from the College of Humanities and Social Sciences. Faculty participants noted that course instruction should leverage Mason's diverse student population and build assignments that allow students to relate to and learn from each other's life experiences; some suggested that this may help enhance students'

[5] https://chss.gmu.edu/general-education/non-western-culture

intercultural competence. In the rubric working group, faculty advocated for flexibility so that outcomes could be appropriately defined for the discipline in which the course is being taught. For instance, the concept of self-awareness may not be an appropriate outcome for a discipline such as Economics, but for others, like Anthropology, positionality is central.

In a collaborative project with doctoral students in Mason's Higher Education program, Dooris, J., Ford, M., Klein, C., Lebrón, J., & Shaw, K. (2015, December) surveyed the landscape of global learning concepts in higher education. They identified three distinct aims for global learning, each with its own set of learning outcomes:

- **International:** the in-depth study of another nation, culture, society, or people, past or present which provides an understanding through political, social, historical, cultural, artistic, literary, geographic and/or economic contexts.
- **Intercultural:** the diversity of social identity, values, beliefs or customs within or outside of United States with a focus on the skills necessary to act appropriately in intercultural situations.
- **Global:** the interconnectedness of cultures and societies through interdisciplinary examination of global problems or issues.

Dooris et. al. recommended that these three aims cannot be accomplished at any level in a single general education course, but that students should be provided with curricular and high impact co-curricular experiences that support them to develop this comprehensive set of outcomes.

## Assessment Rubric(s)

The **Mason Core Rubric for Evaluating Student Work in Global Understanding** was developed by a team of Mason faculty who teach Global Understanding courses. The rubric was adapted from the AAC&U Global Learning VALUE rubric (2014) and was informed by the Measuring College Learning Project (Calder & Steffes, 2016). The rubric is designed to evaluate student performance on four broad learning outcomes, with four increasingly sophisticated performance descriptors for each outcome. The rubric can be used with many types of student work. Most student work will not show evidence of all four outcomes; in this case, an additional category for "no evidence" should be made available.

## Courses Approved for Mason Core Global Understanding Category

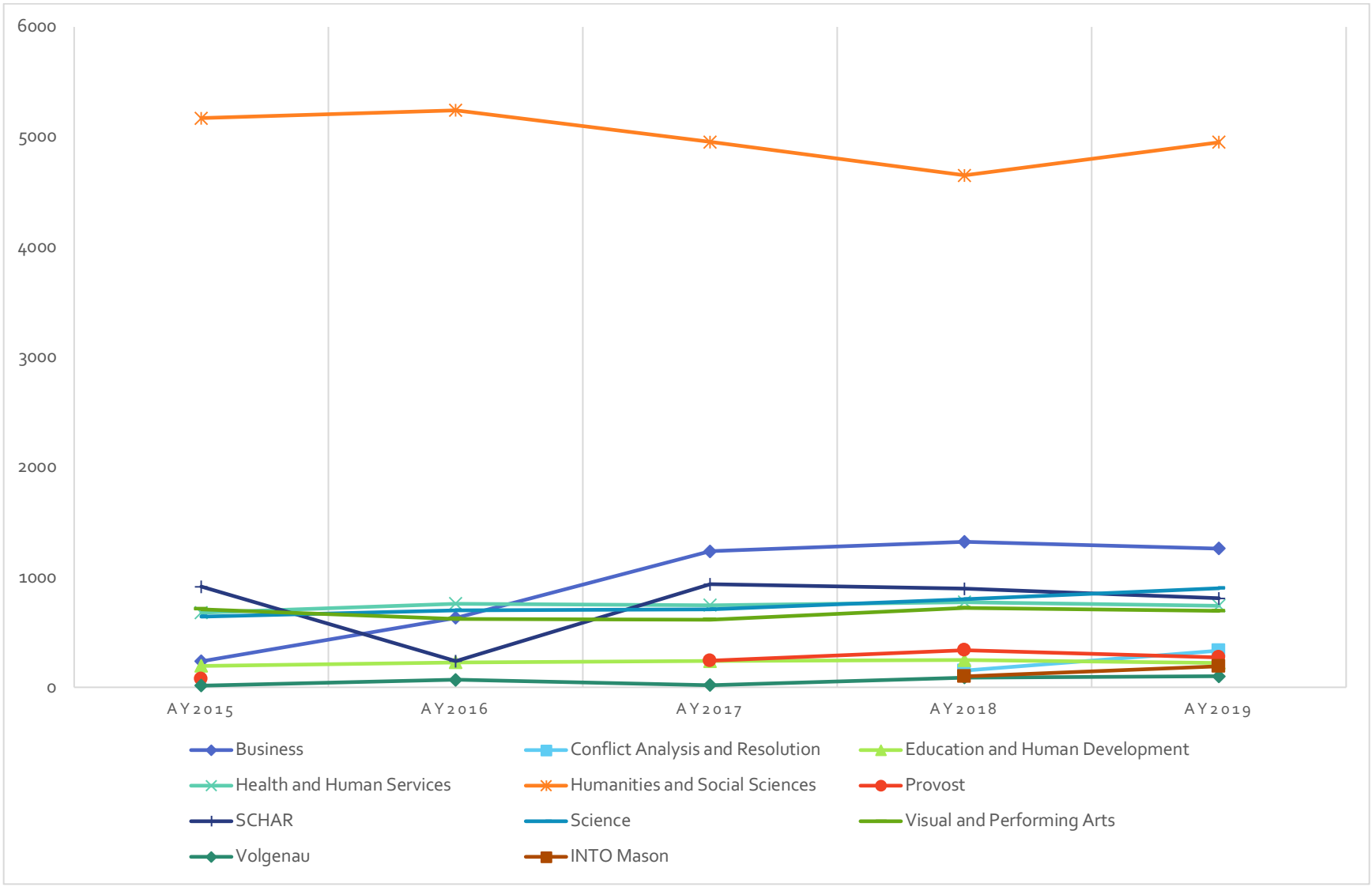
ANTH 302: Peoples/Cultures Latin Amer
ANTH 308: Peoples/Culture of Middle East
ANTH 309: Peoples and Cultures of India
ANTH 312: Political Anthropology
ANTH 313: Myth, Magic and Mind
ANTH 331: Refugees
ANTH 332: Cultures Comparative Perspective
ANTH 382: Urban Anthropology
ARTH 319: Art of Ancient Near East
ARTH 320: Art of the Islamic World
ARTH 380: African Art
ARTH 382: Arts of India
ARTH 383: Arts of Southeast Asia
ARTH 384: Arts of China
ARTH 386: The Silk Road
BUS 200: Global Environment of Business
CEIE 100: Environmental Eng Around World
CEIE 497: Applied Engineering Abroad
COMM 305: Foundations Intercultural Comm
CONF 340: Global Conflict Analysis/Resol
CRIM 405: Law and Justice Around World
DANC 118: World Dance
DANC 418: Global Dance Intensive
ECON 360: Economics of Developing Areas
ECON 361: Econ Develpmt Latin Amer
ECON 362: African Economic Development
ECON 380: Economies in Transition
ECON 390: International Economics
ENGH 362: Global Voices
FAVS 300: Global Horror Film
FRLN 331: Topics in World Cinema
GCH 205: Global Health
GGS 101: Major World Regions
GLOA 101: Intro to Global Affairs
GOVT 132: Intro International Poli
GOVT 133: Intro Comparative Politics
GOVT 364: Public Policy Making
HIST 202: Fresh/Soph Sem in Global Hist
HIST 251: Survey of East Asian Civ
HIST 252: Survey of East Asian History
HIST 261: Survey of African History
HIST 262: Survey of African History
HIST 271: Survey Latin Amer Hist
HIST 272: Survey Latin American History
HIST 281: Surv of Middle Eastern Civiliz
HIST 282: Survey of Mid East Civilizatio
HIST 328: Rise of Russia
HIST 329: Modern Russia and Soviet Union
HIST 356: Modern Japan
HIST 357: Postwar Japan: 1945-Pres
HIST 358: Post - 1949 China
HIST 360: History of South Africa
HIST 364: Revol/Radical Politics-Lat Am
HIST 365: Conquest/Colonztn-Lat Am
HIST 384: Global History of Christianity
HIST 387: Topics in Global History
HIST 460: Modern Iran
HIST 462: Women in Islamic Society
INTS 303: Intro to International Studies
INYO 105: American Cultures

JAPA 310: Japanese Cult in a Global Wrld
MBUS 305: Intro International Business
ME 497: Applied Engineering Abroad
MSOM 305: Managing in a Global Economy
MUSI 103: Musics of the World
MUSI 431: Music History in Society III
NCLC 102: Global Netwrks and Communities
PHIL 243: Global Environmental Ethics
PROV 105: American Cultures
PROV 150: Int'l Exp: Global Understanding
PSYC 379: Applied Cross-Cultur Psy
RELI 100: Human Relig Experience
RELI 211: Religions of the West
RELI 212: Religions of Asia
RELI 313: Hinduism
RELI 315: Buddhism
RELI 320: Religion/Revolution Latin Amer
RELI 341: Spirituality and Healing
RELI 374: Islamic Thought
RELI 384: Global History of Christianity
RUSS 354: Cntmpry Post-Soviet Life
SOCI 120: Globalization and Society
SOCI 320: Social Structure and Globaliza
SOCI 332: The Urban World
SPAN 322: Intro Latin Amer Culture
SPAN 466: Latin Am Civ and Culture
SYST 202: Eng Systems in Complex World
SYST 497: Applied Engineering Abroad
THR 359: World Stages
TOUR 210: Glob Underst-Travel/Tour
WMST 100: Global Reps of Women

*Table 12. Enrollment in Mason Core Global Understanding Courses, AY2015-19*

| | AY2015 | | AY2016 | | AY2017 | | AY2018 | | AY2019 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **#Sections** | **Enroll** | **#Sections** | **Enroll** | **#Sections** | **Enroll** | **#Sections** | **Enroll** | **#Sections** | **Enroll** |
| Business | 6 | 236 | 20 | 631 | 39 | 1,236 | 42 | 1,322 | 42 | 1,262 |
| Conflict Analysis and Resolution | | | | | | | 5 | 152 | 15 | 333 |
| Education and Human Development | 5 | 194 | 9 | 227 | 9 | 239 | 10 | 248 | 10 | 222 |
| Health and Human Services | 18 | 678 | 19 | 759 | 19 | 746 | 19 | 773 | 20 | 742 |
| Humanities and Social Sciences | 171 | 5,171 | 172 | 5,242 | 161 | 4,954 | 155 | 46,52 | 162 | 4,952 |
| Provost | 6 | 74 | | | 15 | 242 | 8 | 337 | 3 | 273 |
| SCHAR | 11 | 915 | 13 | 238 | 12 | 937 | 13 | 895 | 12 | 808 |
| Science | 11 | 642 | 11 | 697 | 11 | 707 | 16 | 798 | 14 | 900 |
| Visual and Performing Arts | 23 | 709 | 24 | 622 | 22 | 614 | 26 | 721 | 27 | 694 |
| Volgenau | 1 | 15 | 2 | 69 | 1 | 20 | 2 | 90 | 6 | 101 |
| INTO Mason | | | | | | | 7 | 99 | 12 | 191 |
| **TOTAL** | **252** | **8,634** | **270** | **8,485** | **289** | **9,695** | **303** | **10,087** | **323** | **10,478** |

*Figure 21. Five-Year Enrollment Trends in Global Understanding Courses, AY2015-19*



# IT & Computing

## Description and Learning Outcomes

Information technology and computing can significantly augment humans' ability to produce, consume, process, and communicate information. Thus, students need to understand ways to use such technology to enhance their lives, careers, and society, while being mindful of challenges such as security, source reliability, automation, and ethical implications. These factors have made it essential for students to understand how to effectively navigate the evolving technological landscape. IT courses offered in the majors may focus on disciplinary applications and concerns of information technology.

IT courses meet the following learning outcomes:[6]

1. **Principles and Ethics:** Students will understand the principles of information storage, exchange, security, and privacy and be aware of related ethical issues.
2. **Information Literacy:** Students will become critical consumers of digital information; they will be capable of selecting and evaluating appropriate, relevant, and trustworthy sources of information.
3. **Decision-making:** Students can use appropriate information and computing technologies to organize and analyze information and use it to guide decision-making.
4. **Algorithmic Methods:** Students will be able to choose and apply appropriate algorithmic methods to solve a problem.

## Approved Courses and Enrollment

Students are required to pass one course approved for IT & Computing or transfer in an appropriate course. During the assessment period, 15 courses were approved to meet the IT & Computing requirement:

ANTH 395 Work, Technology, and Society: An IT Perspective
AVT 180 New Media in the Creative Arts
CDS 130 Computing for Scientists
CS 100 Principles of Computing
CS 112 Introduction to Computer Programming
GOVT 300 Research Methods and Analysis
HIST 390 The Digital Past
INTS 249 Digital Literacy
INTS 345 Introduction to Multimedia

[6] It should be noted that IT & Computing learning outcomes were revised for the AY19 Catalog.

INTS 445 Multimedia Design
IT 104 Introduction to Computing
MIS 303 Introduction to Business Information Systems
MUSI 259 Music in Computer Technology
PHYS 251 Introduction to Computer Techniques in Physics
SOCI 410 Social Surveys and Attitude and Opinion Measurements

IT & Computing courses now enroll almost 7,000 students each year with an average class size that ranges from 14 students in PHYS 251 to 69 in CS 112 lecture (see Table 13). The median section size across courses was 42 from AY15-19. See Figure 26 for five-year enrollment trends.

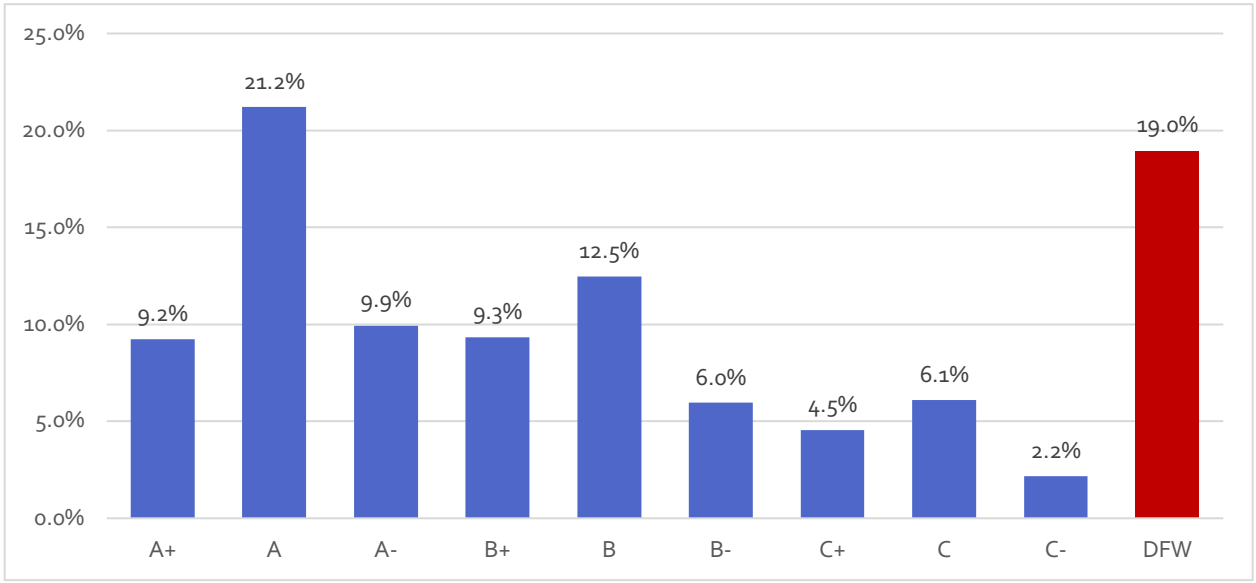
## Courses Included in Assessment

The assessment period included 64 sections of Mason Core IT & Computing courses taught in spring 2019, for which 80% submitted materials.

### *Enrollment and Grades Distribution*

A total of 3,150 students enrolled in IT & Computing courses in the assessment period. Of these students, 78.8% passed their courses with a C or above (see Figure 22). It should be noted that the DFW rate is exceptionally high for Mason Core courses overall.

*Figure 22. Grades Distribution for Mason Core IT & Computing Courses, Spring 2019*



## Assessment Methods

Student work samples were requested from all course sections taught in the assessment period. Faculty were asked to submit samples that represented student submissions completed in the final third part of the semester and that allowed students to demonstrate their learning on one or more of the expected course learning outcomes. Samples were selected using randomized course enrollment lists to insure the best possible representative sample. Samples included writing, design, and coding projects of varying levels of complexity.

The **Mason Core Rubric for Evaluating Student Work in IT & Computing Courses** was used for this assessment. The rubric was developed by Mason faculty as a tool to assess individual student work on five learning tasks or outcomes, with a sixth outcome added for pilot-testing. The rubric uses four performance descriptors: Benchmark, Emerging Milestone, Advanced Milestone, and Capstone, as well as an option for "no evidence." The performance descriptors are developmental, identifying student performance levels in a context of learning and growth. The rubric is intended to be used across all of the years of a student's college experience, and is not limited to a single course, assignment, or student class level.

Using a process modeled after the VALUE Institute reviewer calibration, faculty reviewers were trained to use the rubric to assess student work. Reviews were normed to produce consistent ratings across reviewers. Reviewers met for an in-person, one-day training and review session and completed the reviews of student work by the end of the day. Reviewers were faculty members who have taught Mason Core IT & Computing courses. Reviewers earned a small stipend for their efforts. Most of the work samples were assessed twice; a shortage of reviewers on review day did not allow for two reviews for every sample.

## Learning Outcomes Assessment Results

Figures 23 and 24 display results from ratings of 321 ratings. Figure 23 includes "no evidence" ratings; a rating of "no evidence" was used when the learning outcome could not be seen in the sample; this could mean that either the assignment did not require application of the outcome, or that the student did not demonstrate it. A "no evidence" rating provides important information in aggregate but is given no value for an individual sample. Note that Outcome 1, **Principles and Ethics**, was divided into two outcomes on the rubric.

*Figure 23. Assessment Results, Aggregated, including "No Evidence" Ratings*

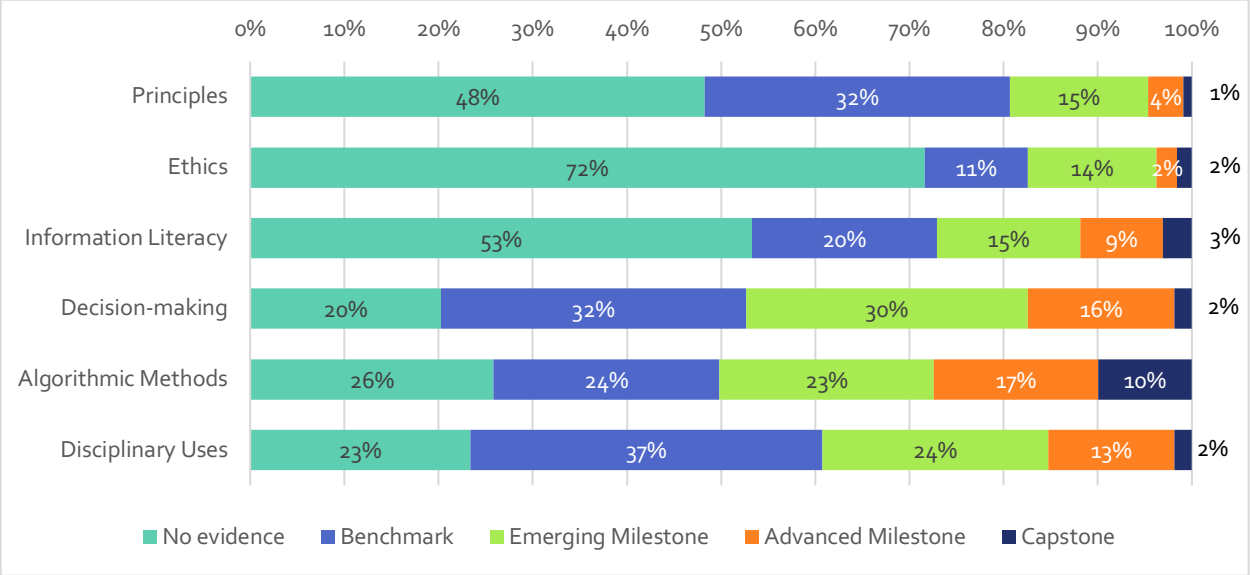
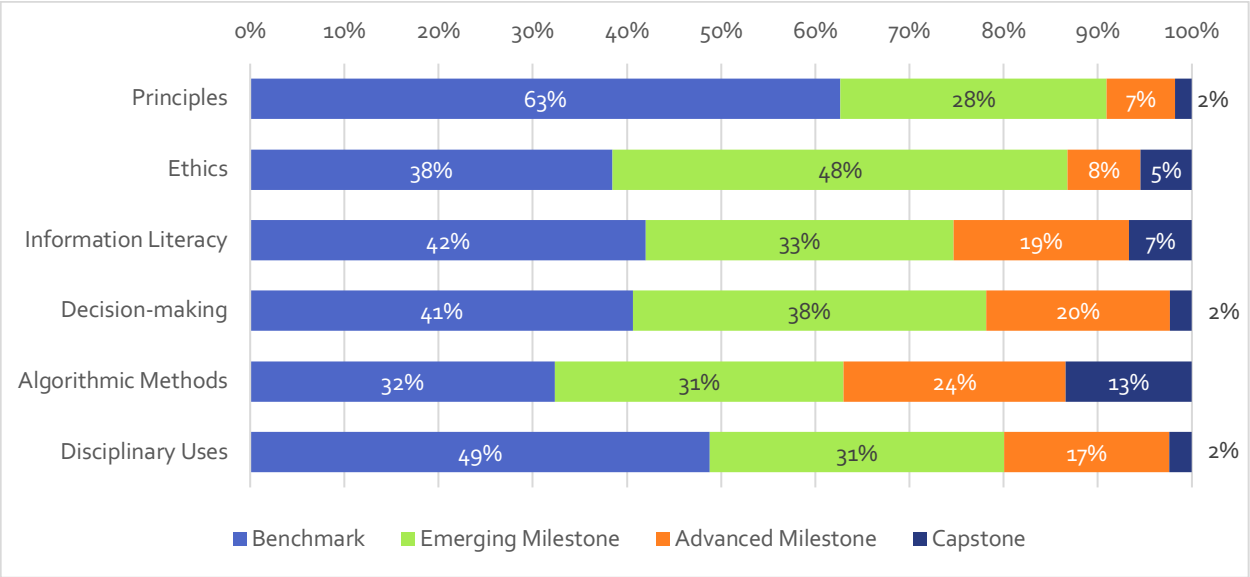



*Figure 24. Assessment Results, Aggregated, excluding "No Evidence" Ratings*




## *Highlights from Analysis of Results*

Data were analyzed to ascertain differences among courses in achieving the five learning outcomes. Comparison tests were conducted using nonparametric statistics because rubric data are ordinal; Independent-Samples Mann-Whitney *U*, ($p$ <.05) was used when analyzing differences between two groups, and Independent-Samples Kruskal–Wallis *H* test was used to

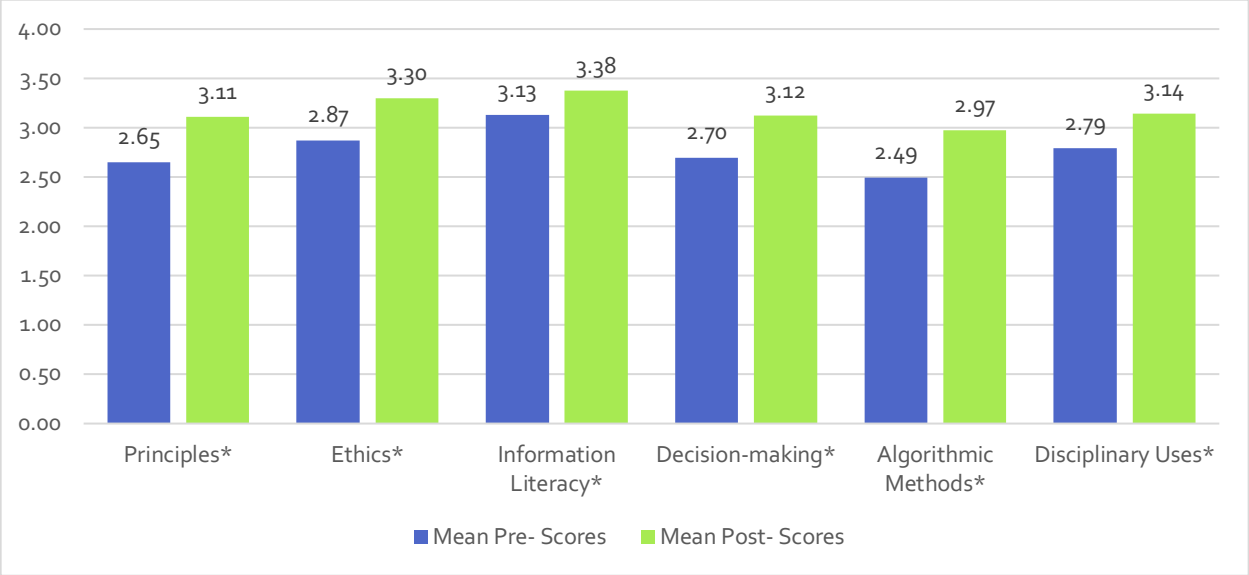
analyze differences across three or more groups or courses. "No evidence" was treated as missing. Significant findings ($p$ <.05) are noted below.

- Work samples were most likely to show evidence of **Decision-making**; **Algorithmic Methods**; and additional Outcome 5, Use digital resources, methods and software, or forms of communication relevant to the work of their discipline.
- Work samples were least likely to show evidence of **Principles and Ethics** and **Information Literacy.**
- In a comparison between lower-division and upper-division courses, differences were significant for all outcomes except for **Information Literacy**. Ratings were higher for work samples in lower- or upper-division courses, depending on the outcome. See Table 14 for test information.
    - **Principles**: Upper-division rated higher
    - **Ethics**: Lower-division rated higher
    - **Information Literacy**: No difference
    - **Decision-making**: Upper-division rated higher
    - **Algorithmic Methods**: Lower-division rated higher
    - **Disciplinary uses**: Lower-division rated higher
- Breaking down the results for each outcome by course within upper- and lower-division groupings, Kruskal-Wallis H tests found significant differences among courses in both groupings. See Tables 15-16. This likely reflects the variations in expectations for assignments rather than student performance, but this is inconclusive.

### *Student Self-Assessment*

All students who were enrolled in a Mason Core IT & Computing course during the assessment period received an online self-assessment survey at the end of the semester. The retrospective pre-post self-assessment asked students to rate their knowledge and skills on six learning outcomes at the beginning of the semester (pre), and then again at the end of the semester (post). In total, 277 students completed both the pre and post items, resulting in a 11.7% response rate. A t-test pairwise comparison showed significant perceived learning gains on all six outcomes (see Figure 25).

*Figure 25. Mean Scores on Student Learning Self-Assessment*




Mean scores, self-reported on a scale of 1-4, n=277, * $p < .05$

## How do the Results Meet Expectations?

Because this was the first time that Mason used this rubric to assess student work, these data provide baseline information. More than half (56%) of samples were from lower-division courses, which suggests that at least half of the samples should be rated at the Benchmark and Emerging levels. Faculty noted that although 44% of samples are from upper-division courses, course concept may be introductory for many students, thus, we see lower overall scores.

This assessment used student work samples and did not evaluate entire courses, so it is not clear how well-covered the outcomes might be across the IT & Computing category. However, the large percentage of "no evidence" ratings could suggest that those outcomes may not receive sufficient attention in terms of instruction and assessment.

## How are Results Being Used to Improve Students' Educational Experience?

Data analysis was completed at the writing of this report, and results have not yet been shared with faculty. In pre-assessment workshops, faculty were encouraged to use the assessment rubric in their course and assignment design.

## Limitations of this Assessment

Overall, this rubric may not be the most effective way to assess learning in the IT & Computing courses. The rubric did not align well with most work samples—many of which required discipline experts to review lines of code—and it was challenging to see the relevance across all

types of courses. The rubric may be better used as a curriculum and student assignment planning tool rather than a work sample assessment tool.

## Assessment Rubric(s)

The **Mason Core Rubric for Evaluating Student Work in IT & Computing** was developed by a team of Mason IT & Computing faculty to evaluate student work for the Mason Core learning outcomes in IT & Computing. The rubric was modeled after the AAC&U VALUE rubrics, and was informed by the University of Delaware initiative on Computational Thinking (Guidry, Mouza, Pollock, & Pusecker, 2019). The rubric was designed to evaluate student performance on five learning outcomes and an additional sixth "test" outcome for disciplinary applications. The rubric identifies four increasingly sophisticated performance descriptors for each outcome. The rubric can be used with many types of written work. Most student work will not show evidence of all outcomes; in this case, an additional category for "no evidence" should be made available.

*Table 13. Enrollment in Mason Core IT & Computing Courses by Course, AY2015-19*

| | AY2015 | | AY2016 | | AY2017 | | AY2018 | | AY2019 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | #Course Sections | Enroll | #Course Sections | Enroll | #Course Sections | Enroll | #Course Sections | Enroll | #Course Sections | Enroll |
| **AVT 180** | 17 | 313 | 16 | 285 | 18 | 341 | 19 | 358 | 21 | 392 |
| **CDS 130** | 9 | 430 | 13 | 560 | 15 | 620 | 18 | 654 | 21 | 685 |
| **CS 100** | 2 | 75 | 3 | 104 | 2 | 84 | 3 | 121 | 1 | 40 |
| **CS 112** | 12 | 872 | 17 | 1,060 | 17 | 1,082 | 19 | 1,229 | 15 | 1,304 |
| **GOVT 300** | 8 | 245 | 6 | 275 | 6 | 313 | 9 | 321 | 10 | 328 |
| **HIST 390** | 7 | 284 | 7 | 289 | 8 | 328 | 9 | 353 | 10 | 410 |
| **INTS 203** | | | | | 2 | 34 | 2 | 50 | 2 | 48 |
| **INTS 249** | | | | | | | | | 2 | 47 |
| **INTS 345** | | | | | | | | | 4 | 92 |
| **IT 103** | 31 | 1,959 | 5 | 183 | | | | | | |
| **IT 104** | | | 26 | 1,590 | 30 | 1,651 | 27 | 1,684 | 30 | 1,741 |
| **MIS 303** | | | 16 | 470 | 24 | 1,026 | 28 | 1,572 | 33 | 1,754 |
| **MUSI 259** | 2 | 89 | 2 | 98 | 2 | 99 | 2 | 105 | 2 | 118 |
| **PHYS 251** | | | 1 | 18 | 2 | 18 | 2 | 27 | 2 | 34 |
| **TOTAL** | **86** | **4,178** | **67** | **2,756** | **68** | **2,802** | **79** | **3,086** | **86** | **3,346** |

*Figure 26. Five-Year Enrollment Trends in Mason Core IT & Computing Courses, AY2015-19*

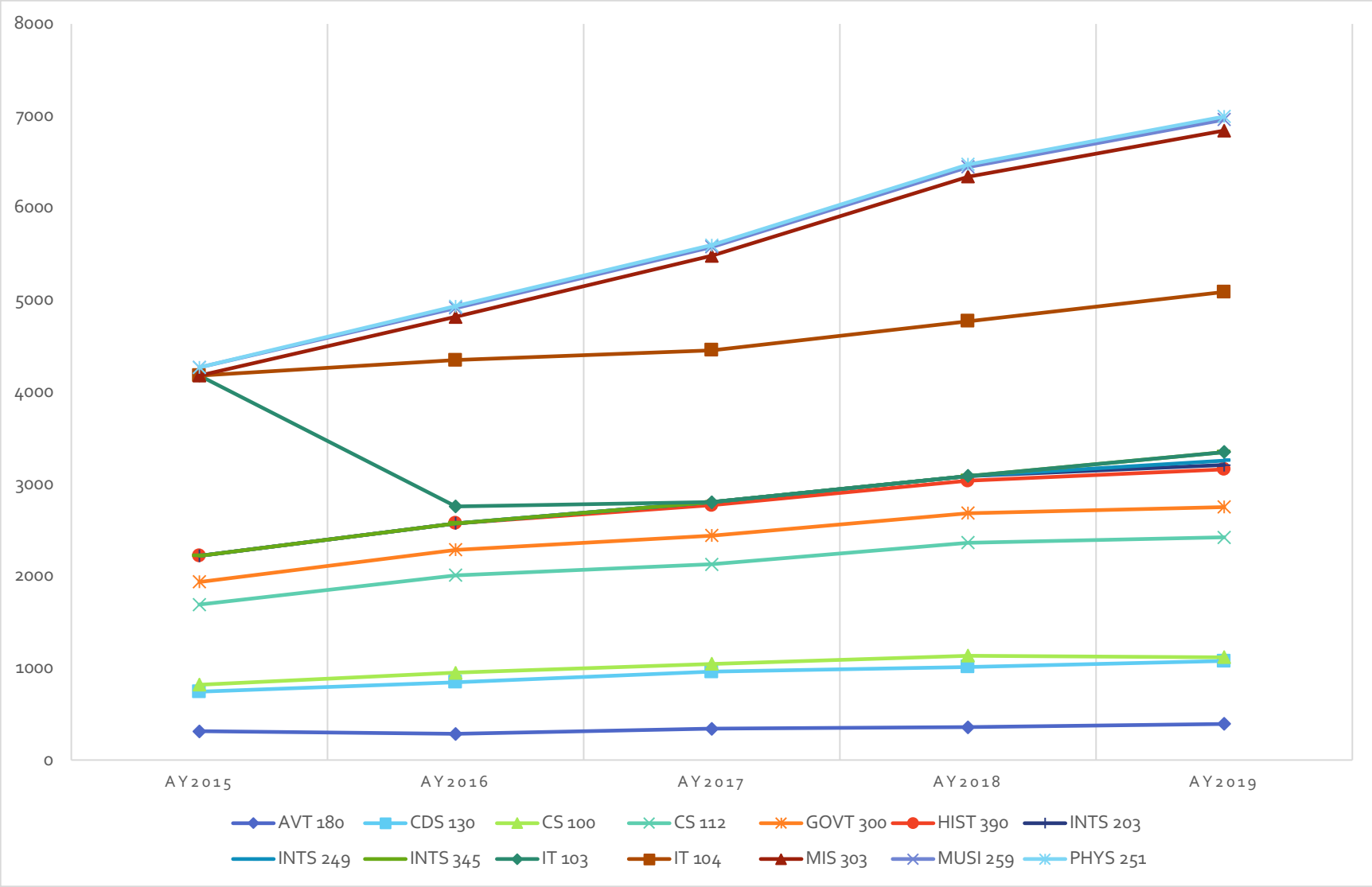


*Table 14. Mann-Whitney U Test: Comparison of Rubric Ratings, Lower-Division IT vs. Upper-Division IT in the Major*

| | Mean Rank (n) | | | | | |
|---|---|---|---|---|---|---|
| | Lower | Upper | *U* | Z | p | Sig. |
| **Principles** | 73.16 (97) | 98.04 (69) | 4349.500 | -3.844 | 0.000 | * |
| **Ethics** | 52.21 (56) | 36.06 (35) | 632.000 | -3.117 | 0.002 | * |
| **Information Literacy** | 78.19 (72) | 73.02 (78) | 2614.500 | -0.774 | 0.439 | |
| **Decision-making** | 116.19 (134) | 142.02 (122) | 9824.000 | -2.985 | 0.003 | * |
| **Algorithmic Methods** | 149.46 (128) | 84.63 (110) | 3204.500 | -7.544 | 0.000 | * |
| **Disciplinary Uses** | 141.11 (131) | 103.44 (115) | 5226.000 | -4.498 | 0.000 | * |

*Table 15. Kruskal-Wallis H Test for Differences in Upper-Division Courses*

| | Course | n | Mean Rank | Kruskal-Wallis H | df | p | Sig. |
|---|---|---|---|---|---|---|---|
| **Principles** | GOVT 300 | 5 | 16 | 8.342 | 2 | 0.015 | * |
| | HIST 390 | 10 | 28 | | | | |
| | MIS 303 | 54 | 38.06 | | | | |
| **Ethics** | MIS 303 | 27 | 20.37 | 8.483 | 2 | 0.014 | * |
| **Information Literacy** | HIST 390 | 14 | 35.29 | 18.493 | 2 | 0.000 | * |
| | MIS 303 | 56 | 38.39 | | | | |
| **Decision-making** | INTS 345 | 5 | 76 | 2.907 | 2 | 0.234 | |
| | GOVT 300 | 5 | 86.4 | | | | |
| | HIST 390 | 18 | 60.44 | | | | |
| | MIS 303 | 99 | 60.43 | | | | |
| **Algorithmic Methods** | GOVT 300 | 5 | 86.5 | 7.404 | 2 | 0.025 | * |
| | HIST 390 | 13 | 62.54 | | | | |
| | MIS 303 | 92 | 52.82 | | | | |
| **Disciplinary Uses** | GOVT 300 | 5 | 93.9 | 24.249 | 2 | 0.000 | * |
| | HIST 390 | 23 | 77.24 | | | | |
| | MIS 303 | 87 | 50.85 | | | | |

*Table 16. Kruskal-Wallis H Test for Differences in Lower-Division Courses*

| | Course | n | Mean Rank | Kruskal-Wallis H | df | p | Sig. |
|---|---|---|---|---|---|---|---|
| **Principles** | AVT 180 | 37 | 40.05 | 32.35 | 4 | 0.000 | * |
| | CDS 130 | 19 | 73.16 | | | | |
| | CS 112 | 26 | 45.75 | | | | |
| | IT 104 | 14 | 46.75 | | | | |
| **Ethics** | CDS 130 | 11 | 43.82 | 16.36 | 4 | 0.003 | * |
| | IT 104 | 39 | 23.99 | | | | |
| **Information Literacy** | AVT 180 | 10 | 39.6 | 9.851 | 4 | 0.043 | * |
| | CDS 130 | 14 | 47.43 | | | | |
| | IT 104 | 42 | 33.44 | | | | |
| **Decision-making** | AVT 180 | 37 | 52.08 | 47.679 | 5 | 0.000 | * |
| | CDS 130 | 23 | 95.48 | | | | |
| | CS 112 | 35 | 61.8 | | | | |
| | IT 104 | 30 | 55.07 | | | | |
| **Algorithmic Methods** | PHYS 251 | 6 | 123 | 47.845 | 4 | 0.000 | * |
| | AVT 180 | 40 | 44.86 | | | | |
| | CDS 130 | 25 | 76.96 | | | | |
| | CS 112 | 38 | 84.32 | | | | |
| | IT 104 | 18 | 34.28 | | | | |

# Literature

## Description and Learning Outcomes

Courses approved for the Literature category must meet at least three of the five following outcomes:

1. **Read for Comprehension:** Students will be able to read for comprehension, detail, and nuance.
2. **Literary Analysis:** Identify the specific literary qualities of language as employed in the texts they read.
3. **Literary Analysis:** Analyze the ways specific literary devices contribute to the meaning of a text.
4. **Context(s):** Identify and evaluate the contribution of the social, political, historical, and cultural contexts in which a literary text is produced.
5. **Critically Engage Texts:** Evaluate a critical argument in others' writing as well as one's own.

## Approved Courses and Enrollment

Students are required to pass one course approved for Literature or transfer in an appropriate course. During the assessment period, 29 courses were approved to meet the Literature requirement. See page 75 for the list of courses approved for the assessment period.

Literature courses enroll over 4,700 students each year with an average class size of 30 (see Table 17). Figure 31 shows enrollment trends over the past five years. The English department teaches the most students, with ENGH 201 and 202 as the highest enrolled courses. PHIL 253 has the next highest enrollment, followed by CLAS 250 and 260.

Students in the Honors College take HNRS 122: Reading the Arts to fulfill their learning outcomes in this category. Although not formally a part of the Mason Core, HNRS 122 is also included in this assessment.

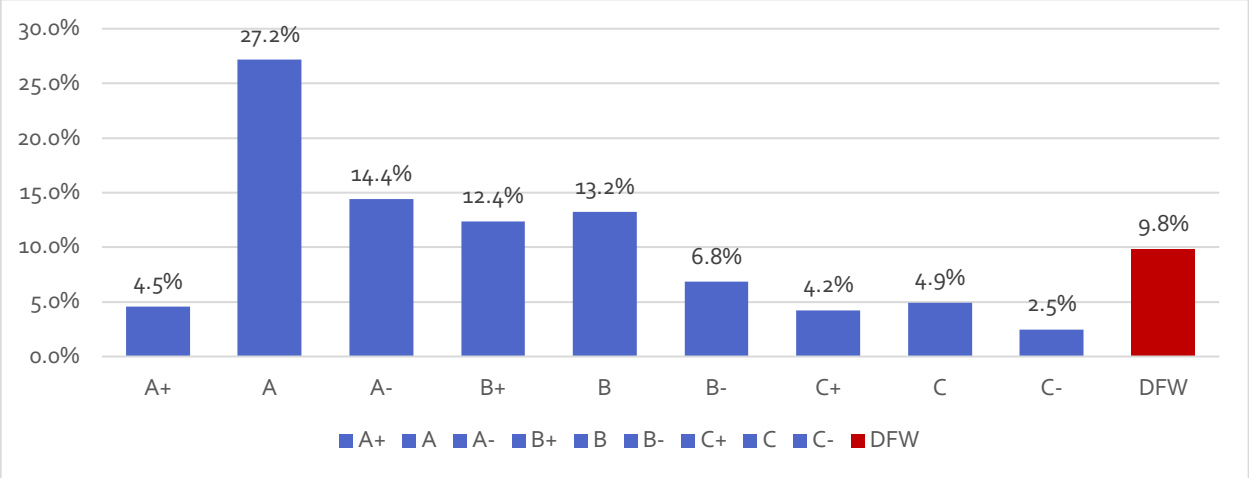
## Courses Included in Assessment

The assessment period included 49 sections of Mason Core Literature courses taught in fall 2018 and nine sections of Honors 122. All sections offered in the assessment period were expected to participate. Of the 58 course sections included in the assessment period, 79% submitted materials.

## *Enrollment and Grades Distribution*

A total of 2,018 students enrolled in Literature courses, and 216 enrolled in HNRS 122 in the assessment period. Of these students, 90% passed their courses with a C- or above (see Figure 27).

*Figure 27. Grades Distribution for Mason Core Literature Courses, Fall 2018*




## Assessment Methods

Student written work samples were requested from all course sections taught in the assessment period. Faculty were asked to submit samples completed in the final third part of the semester and that allowed students to demonstrate their learning on one or more of the expected course learning outcomes. Samples were selected using randomized course enrollment lists to insure the best possible representative sample.

The **Mason Core Rubric for Evaluating Student Work in Literature Courses** was used for this assessment. The rubric was modeled after the VALUE rubrics and was developed by Mason faculty as a tool to assess individual student work on five learning tasks or outcomes. The rubric uses four performance descriptors: Benchmark, Emerging Milestone, Advanced Milestone, and Capstone, as well as an option for "no evidence." The performance descriptors are developmental, identifying student performance levels in a context of learning and growth. The rubric is intended to be used across all of the years of a student's college experience, and is not limited to a single course, assignment, or student class level.

Using a process modeled after the VALUE Institute reviewer calibration, faculty reviewers were trained to use the rubric to assess student work. Reviews were normed to produce consistent ratings across reviewers. Reviewers met for an in-person, one-day training and review session and completed the reviews of student work by the end of the day. Reviewers were faculty

members who have taught Mason Core Literature courses and related courses. Reviewers earned a small stipend for their efforts.

Each student work sample was assessed twice. Results were analyzed for interrater reliability; discrepant reviews were resolved using a third review. Samples that were submitted in foreign languages (e.g. French, Arabic, and Mandarin Chinese) were reviewed by native or fluent speakers of the respective language.

## Learning Outcomes Assessment Results

Figures 28 and 29 display results from 290 ratings. Figure 28 includes "no evidence" ratings; a rating of "no evidence" was used when the learning outcome could not be seen in the sample; this could mean that either the assignment did not require application of the outcome, or that the student did not demonstrate it. A "no evidence" rating provides important information in aggregate but is given no value for an individual sample.

*Figure 28. Assessment Results, Aggregated, including "No Evidence" Ratings*

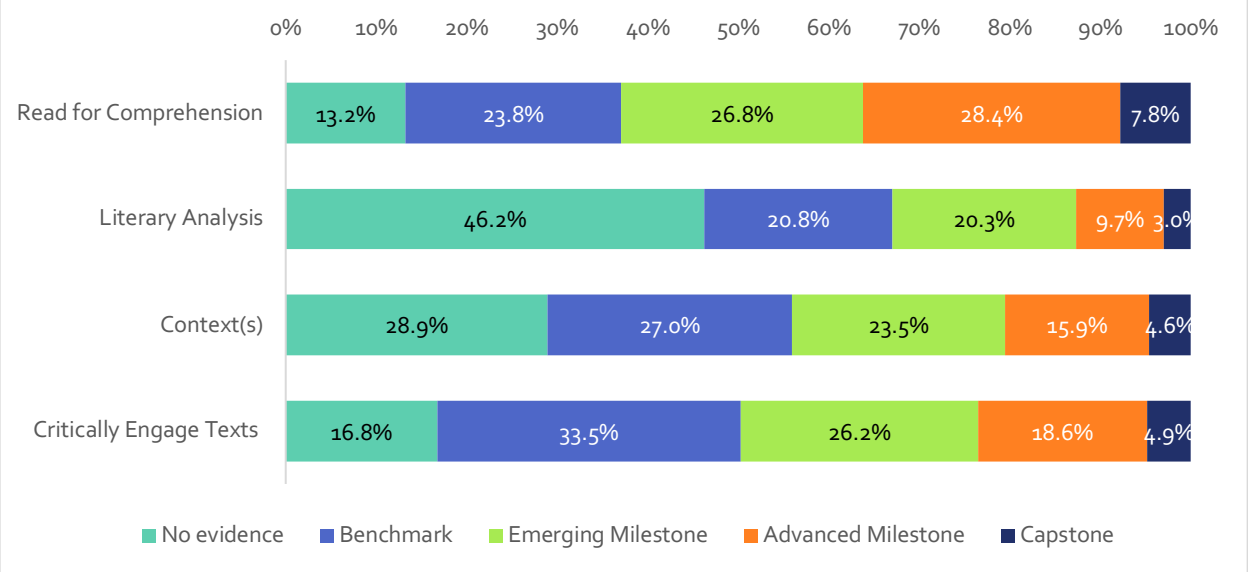
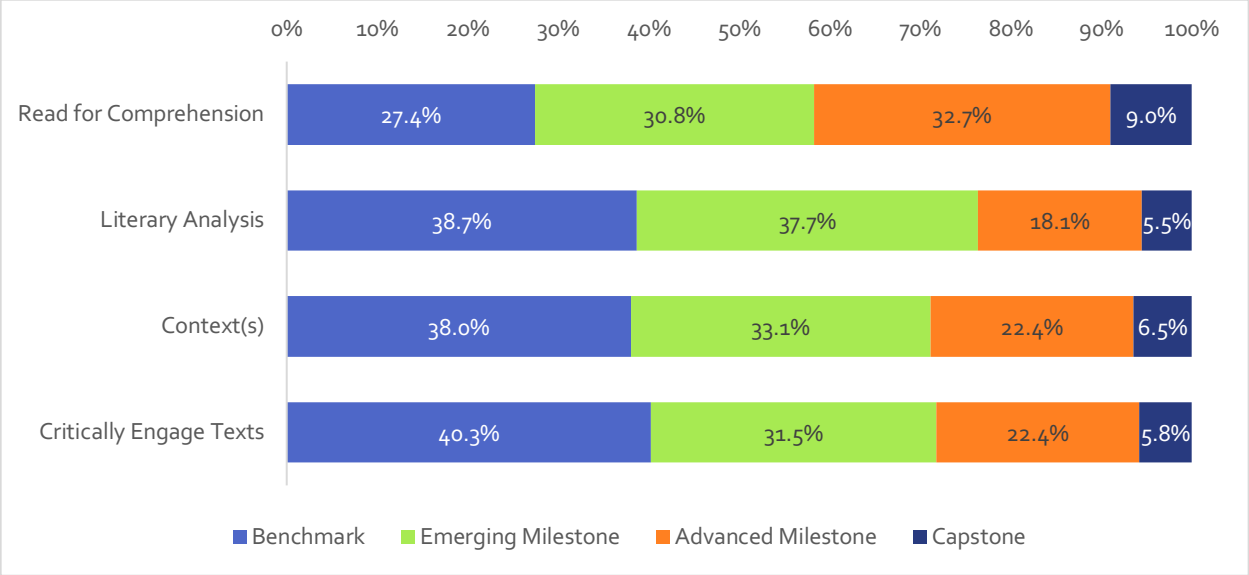


*Figure 29. Assessment Results, Aggregated, excluding "No Evidence" Ratings*




## *Highlights from Analysis of Results*

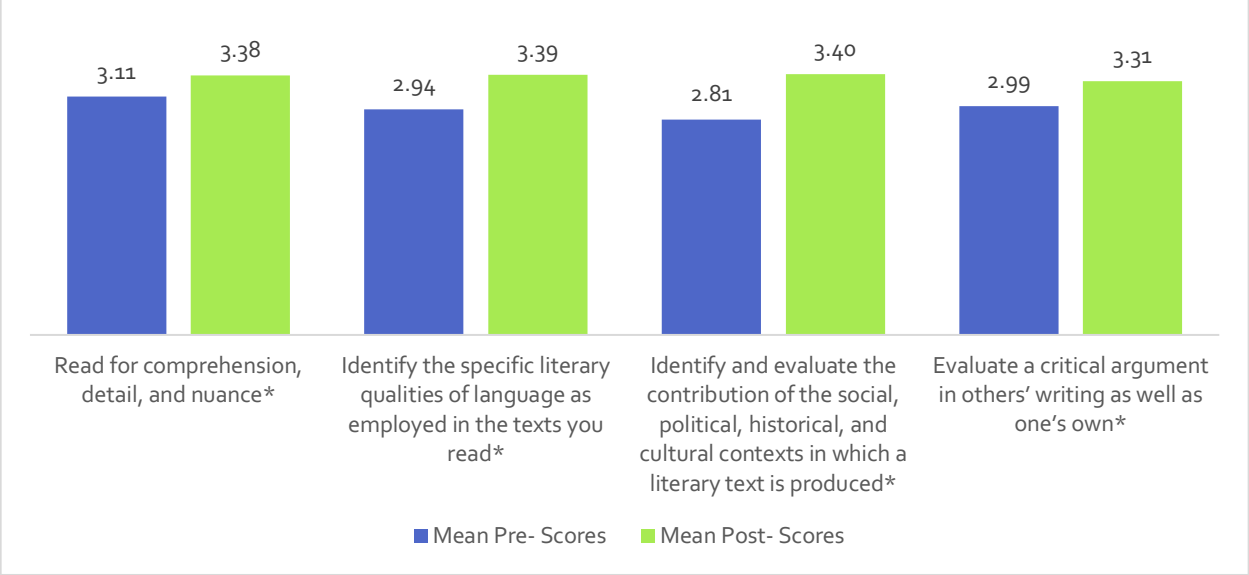
Data were analyzed to ascertain differences among courses in achieving the four learning outcomes. Comparison tests were conducted using nonparametric statistics because rubric data are ordinal; Independent-Samples Mann-Whitney *U*, ($p$ <.05) was used when analyzing differences between two groups, and Independent-Samples Kruskal–Wallis *H* test was used to analyze differences across three or more groups or courses. Demographic groups included gender, race/ethnicity, and transfer status. "No evidence" was treated as missing. Significant findings ($p$ <.05) are noted below.

- Work samples were least likely to show evidence of **Literary Analysis** (53.8% demonstrated this outcome), or **Context(s)** (71.7% demonstrated this outcome).
- Comparison tests revealed no differences in performance by student demographic group.
- The four highest enrolled courses (ENGH 201, ENGH 202, HNRS 122, PHIL 253) were compared for differences in student performance.
    - There were no differences by course or student demographic on **Read for Comprehension** or **Context(s)**.
    - Comparison tests showed significantly higher performance for Honors students only on **Literary Analysis** and **Critically Engage Texts Through Writing**.

### *Student Self-Assessment*

All students who were enrolled in a Mason Core Literature course during the assessment period received an online self-assessment survey at the end of the semester. The retrospective pre-post self-assessment asked students to rate their knowledge and skills on four learning outcomes at the beginning of the semester (pre), and then again at the end of the semester (post). In total, 138 students completed both the pre and post items, resulting in a 6% response rate. A t-test pairwise comparison showed significant perceived learning gains on all four outcomes (see Figure 30).

*Figure 30. Mean Scores on Student Learning Self-Assessment*




Mean scores, self-reported on a scale of 1-4, n=138, * $p < .05$

## How do the Results Meet Expectations?

Because this was the first time that Mason used this rubric to assess student work, these data provide baseline information. In post-assessment conversations, faculty were concerned that literary analysis was not more evidenced in the samples and surmised that perhaps courses need more development in this respect.

## How are Results Being Used to Improve Students' Educational Experience?

A series of open meetings (including an online option) were held in fall 2019 to share results. The English department has been encouraged to use the assessment findings to reconsider its curriculum to better align with the learning outcomes for this category.

## Limitations of this Assessment

Overall, this assessment was well-designed for the student work in the highest enrolled courses. The sample size for many of the courses was insufficient to perform a robust analysis of results for those courses, so it is unclear how well the rubric applied to some of the courses.

## Assessment Rubric(s)

The **Mason Core Rubric for Evaluating Student Work in Literature** was developed by a team of Mason Literature faculty to evaluate student work for the Mason Core learning outcomes in Literature. The rubric was modeled after the AAC&U VALUE rubrics. The rubric is designed to evaluate student performance on four learning outcomes, with four increasingly sophisticated performance descriptors for each outcome. The rubric can be used with many types of written work. Most student work will not show evidence of all four outcomes; in this case, an additional category for "no evidence" should be made available.

## Courses Approved for Mason Core Literature in Fall 2018

ARAB 325: Major Arab Writers/Stories

CHIN 310: Survey of Chinese Literature

CHIN 311: Modern Chinese Literature in Translation

CHIN 325: Major Chinese Writers

CHIN 328: Asian American Women Writers

CLAS 250: Classical Mythology

CLAS 260: The Legacy of Greece and Rome

CLAS 340: Greek and Roman Epic

CLAS 350: Greek and Roman Tragedy

CLAS 360: Greek and Roman Comedy

CLAS 380: Greek and Roman Novels

ENGH 201: Reading and Writing about Texts

ENGH 202: Texts and Contexts

ENGH 203: Western Literary Tradition

ENGH 204: Western Literary Traditions

FREN 325: Major French Writers (Topic Varies)

FREN 329: Problems of Western Civilization in French Literature

FRLN 330: Topics in World Literature

GERM 325: Major Writers

ITAL 320: Topics in Italian Film and Literature

ITAL 325: Major Italian Writers

JAPA 340: Topics in Japanese Literature

KORE 311: Modern Korean Literature in Translation

PHIL 253: Philosophy and Literature

RELI 235: Religion and Literature

RELI 333: Spiritual Autobiography

RUSS 325: Major Russian Writers

RUSS 326: A Survey of Russian Literature

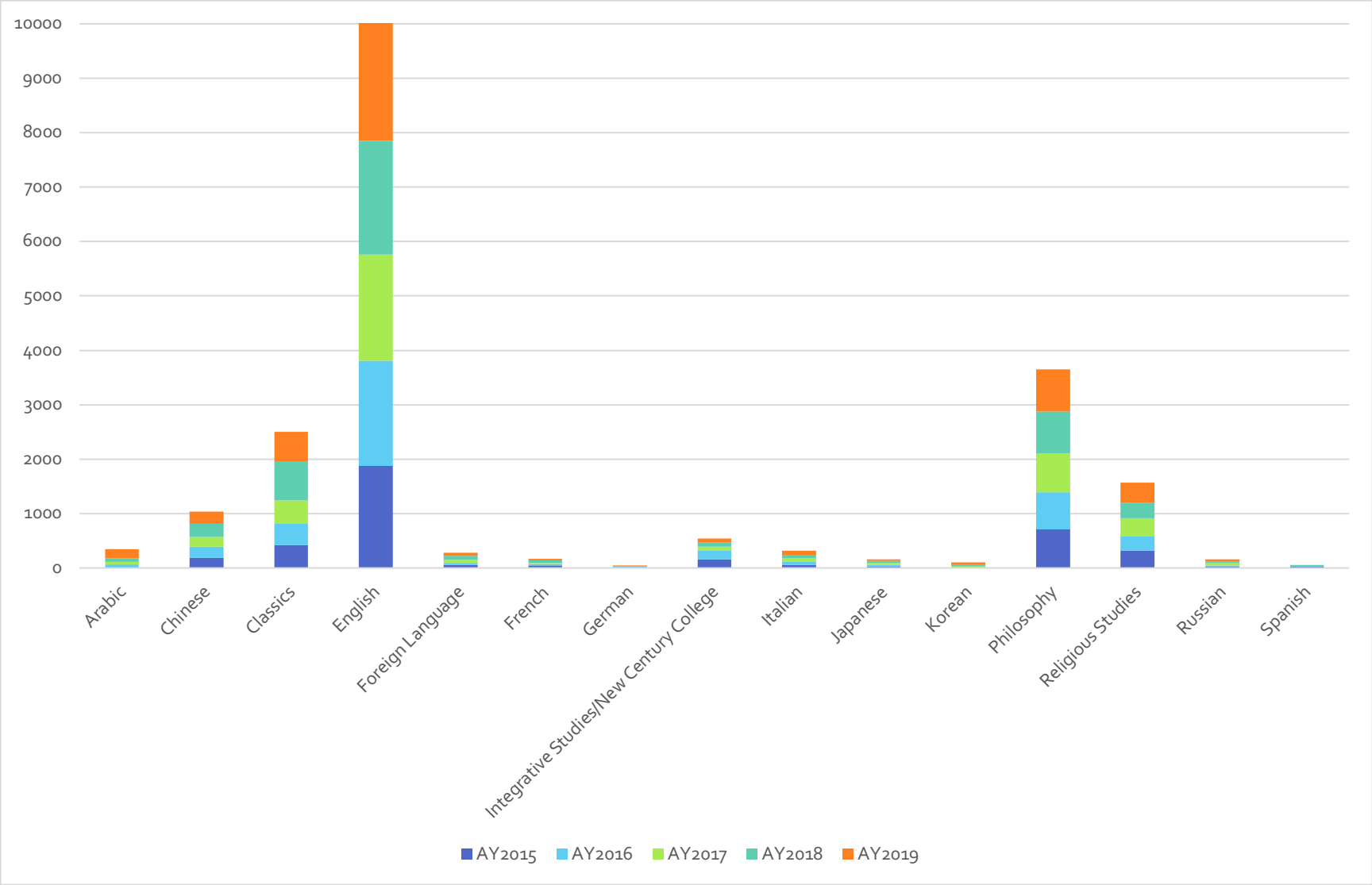
RUSS 327: A Survey of Russian Literature

SPAN 325: Major Hispanic Writers

*Table 17. Enrollment in Mason Core Literature Courses, AY15-19*

| | AY2015 | | AY2016 | | AY2017 | | AY2018 | | AY2019 | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Subject** | **#Sections** | **Enroll** | **#Sections** | **Enroll** | **#Sections** | **Enroll** | **#Sections** | **Enroll** | **#Sections** | **Enroll** |
| Arabic | | | 2 | 64 | 2 | 48 | 3 | 66 | 3 | 164 |
| Chinese | 9 | 190 | 9 | 206 | 8 | 169 | 10 | 247 | 11 | 222 |
| Classics | 9 | 424 | 9 | 399 | 8 | 415 | 18 | 712 | 14 | 550 |
| English | 69 | 1879 | 74 | 1928 | 74 | 1951 | 75 | 2089 | 82 | 2338 |
| Foreign Language | 3 | 53 | 1 | 36 | 4 | 64 | 3 | 74 | 3 | 56 |
| French | 2 | 46 | 1 | 25 | 1 | 22 | 2 | 47 | 1 | 24 |
| German | | | 1 | 25 | | | | | 1 | 24 |
| Integrative Studies/New Century College | 7 | 159 | 7 | 160 | 4 | 72 | 3 | 77 | 3 | 76 |
| Italian | 3 | 59 | 3 | 52 | 4 | 64 | 3 | 69 | 3 | 78 |
| Japanese | 1 | 27 | 1 | 32 | 1 | 35 | 1 | 36 | 1 | 27 |
| Korean | | | | | 1 | 25 | 1 | 39 | 1 | 39 |
| Philosophy | 15 | 709 | 16 | 681 | 16 | 718 | 17 | 772 | 18 | 768 |
| Religious Studies | 8 | 319 | 7 | 269 | 9 | 327 | 8 | 282 | 11 | 373 |
| Russian | 1 | 25 | 1 | 25 | 2 | 48 | 1 | 24 | 2 | 37 |
| Spanish | 1 | 24 | | | | | 1 | 31 | | |
| **TOTAL** | **128** | **3914** | **132** | **3902** | **134** | **3958** | **146** | **4565** | **154** | **4776** |

*Figure 31. Five-Year Enrollment Trends in Mason Core Literature Courses, AY2015-19*



# Natural Sciences

## Description and Learning Outcomes

The Mason Core Natural Sciences courses engage students in scientific exploration; foster their curiosity; enhance their enthusiasm for science; and enable them to apply scientific knowledge and reasoning to personal, professional and public decision-making. Lab courses must meet all five learning outcomes. Non-lab courses must meet learning outcomes 1 through 4. Labs and Fieldwork courses must meet learning outcome #5.

To achieve these goals, students will:

1. **Scientific Method:** Understand how scientific inquiry is based on investigation of evidence from the natural world, and that scientific knowledge and understanding:
    a) evolves based on new evidence
    b) differs from personal and cultural beliefs
2. **Scope and Limits of Science:** Recognize the scope and limits of science.
3. **Science and Society:** Recognize and articulate the relationship between the natural sciences and society and the application of science to societal challenges (e.g., health, conservation, sustainability, energy, natural disasters, etc.).
4. **Scientific Literacy:** Evaluate scientific information (e.g., distinguish primary and secondary sources, assess credibility and validity of information).
5. **Labs and Fieldwork:** Participate in scientific inquiry and communicate the elements of the process, including:
    a) Making careful and systematic observations
    b) Developing and testing a hypothesis
    c) Analyzing evidence
    d) Interpreting results

## Approved Courses and Enrollment

Students are required to pass two approved science courses, with at least one course that includes a laboratory experience, or transfer in appropriate courses. During the assessment period, 68 courses were approved to meet the Natural Sciences requirement for overview (no lab required) and lab science (see Table 20).

Natural Sciences courses enroll almost 13,000 students each year. Average lecture class sizes vary from 14 in Computational Data Sciences to almost 100 in Biology and Chemistry, though

sections can top 300. Labs maintain smaller class sizes for focused, practical instruction—on average, about 20 students, but this also varies by department. Tables 18-19 and figure 36 show enrollment trends over the past five years. Physics and Astronomy is currently the highest enrolled department (31% of AY19 enrollment), followed by Biology (23.7%) and Chemistry (15.2%).

## Courses Included in Assessment

The assessment period included 102 sections of Natural Sciences lecture courses taught on all of Mason's campuses and via distance learning in fall 2019. Of the 95 course sections included in the assessment period, 92.6% submitted materials. Of the 289 lab sections taught in fall 2019, 73 (25%) were randomly selected for the assessment; 88% provided materials.

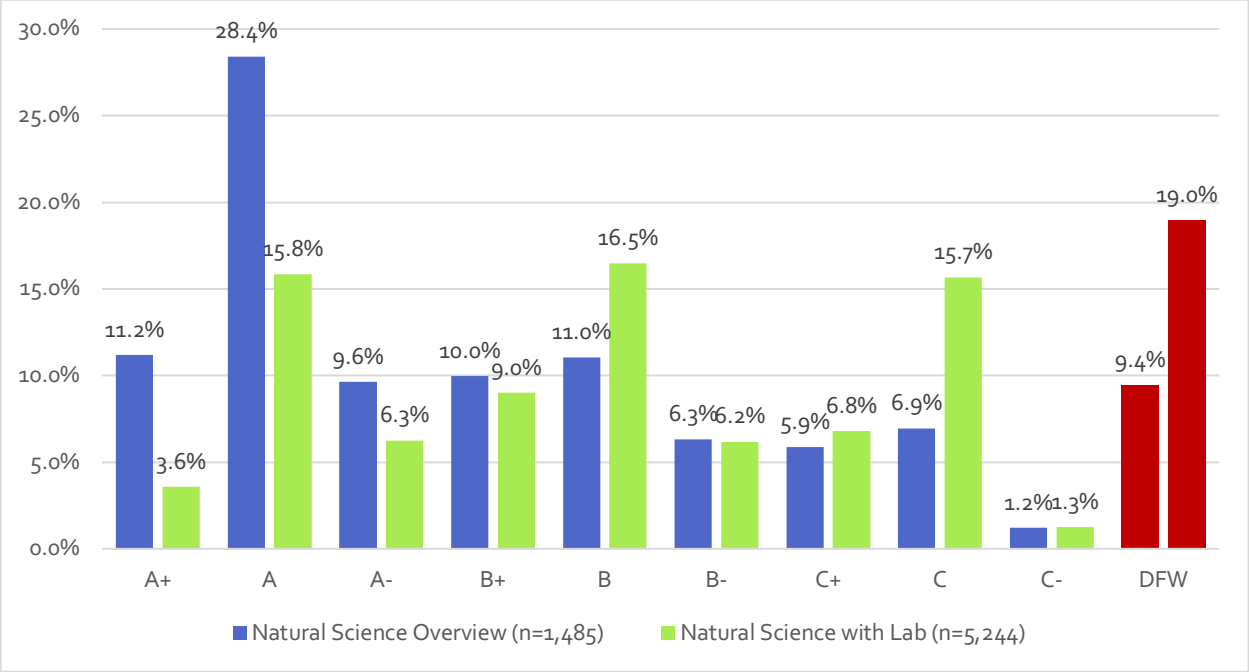
### *Enrollment and Grades Distribution*

A total of 6,758 students enrolled in Natural Sciences lecture courses in the assessment period. The highest enrolled five enrolled courses were BIOL 103 (13.3% of Fall 2019 enrollment), CHEM 211 (12.8%), BIOL 213 (9.1%), GEOL 101 (6.3%), and PHYS 243 (6%). See Tables 18-19.

Of the enrolled students, 89.4% students in Natural Science Overview (NSO) lectures passed their course with a C or above, and 79.8% of students in Natural Science with Lab (NSL) lectures passed their course with a C or above. An independent-samples t-test found that students in NSO courses (m=3.17, $p<.05$) had significantly higher grades overall than students in NSL courses (m=2.70, $p<.05$). Figure 32 displays final grades by course category.

As part of a related project on STEM gateway courses, student enrollment data from AY17-19 were analyzed to understand academic performance in several courses. At interest was performance in introductory STEM courses that were math-heavy (CHEM 211/212, CS 112, PHYS 160/260) versus those that did not require high levels of math (BIOL 213/214, PHYS 243/245). It turns out that courses that the grades in math-based courses (m=2.33) were nearly four-tenths lower, on average, than grades in non-math-based courses (m=2.73). See Figure 37.

*Figure 32. Grades Distribution for Mason Core Natural Sciences Courses, Fall 2019*




Grades of Audit (AU) and Incomplete (IN) not included in the figure (n=29)

## Assessment Methods

Three kinds of work samples were collected for this assessment:

1. Project or homework samples from lecture courses representing any of the learning outcomes #1-4.
2. Exams and scores from lecture courses representing any of the learning outcomes #1-4.
3. Lab report samples from lab courses representing outcome #5.

Faculty were asked to submit samples that represented student submissions completed in the final third part of the semester and that allowed students to demonstrate their learning on one or more of the Natural Sciences learning outcomes. Samples were selected using randomized course enrollment lists to insure the best possible representative sample.

The **Mason Core Rubrics for Natural Science Courses** were used for this assessment. The rubrics were developed by Mason faculty as tools to assess individual student work. The first rubric focuses on outcomes #1-4 and was used for samples from the lecture sections. The second rubric focuses on outcome #5 and was used to assess lab reports. Both rubrics are modeled after the VALUE rubrics and use four performance descriptors: Novice, Developing, Proficient, Advanced, as well as an option for "no evidence." The performance descriptors are developmental, identifying student performance levels in a context of learning and growth.

The rubrics are intended to be used across all of the years of a student's college experience, and is not limited to a single course, assignment, or student class level.

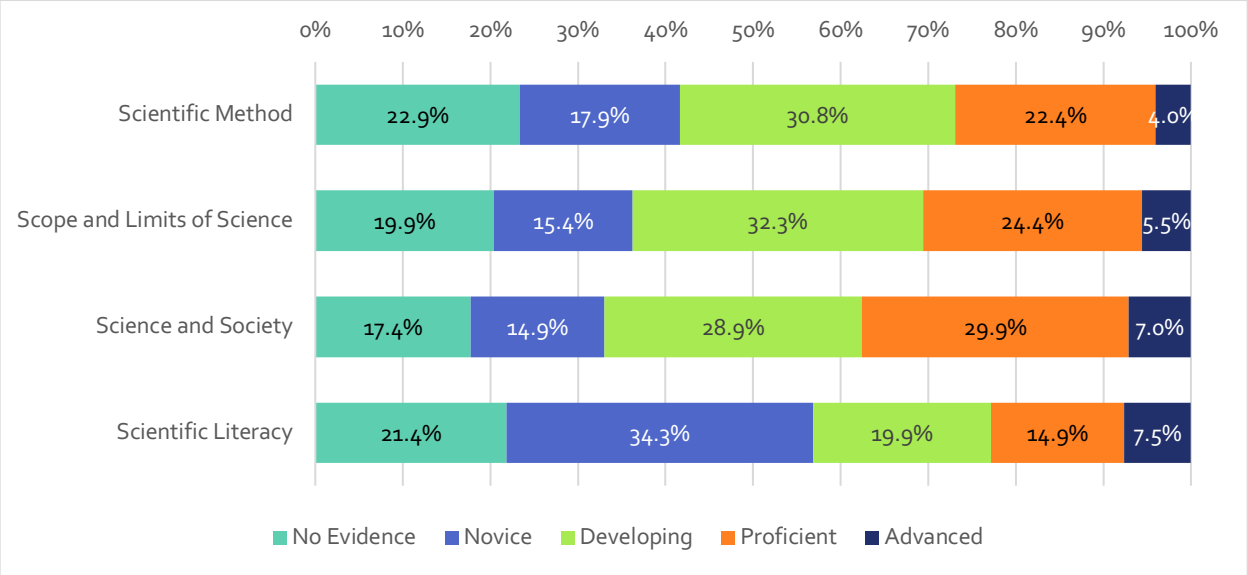
Using a process modeled after the VALUE Institute reviewer calibration, faculty reviewers were trained to use the rubrics to assess student work. Reviews were normed to produce consistent ratings across reviewers. Reviewers met for an in-person, one-day training and review session and completed the reviews of student work by the end of the day. Reviewers were faculty members who have taught Mason Core Natural Sciences courses. Reviewers earned a small stipend for their efforts. Each student work sample was assessed twice.

## Learning Outcomes Assessment Results

### *Lecture Samples – Project Samples*

Figure 33 displays results from 201 ratings on the rubric for lecture courses (Outcomes #1-4). Across the outcomes, 20% of samples were rated as "no evidence," meaning that the learning outcome was not identified in the sample. Samples were rated as Novice or Proficient 44-54% across the outcomes, which is to be expected for 100- and 200-level courses. A Pearson's Chi-Square test did not reveal differences between NSO and NSL lecture samples.

*Figure 33. Assessment Results for Project Samples from Lecture Courses*




N = 201

### *Lecture Samples – Exams*

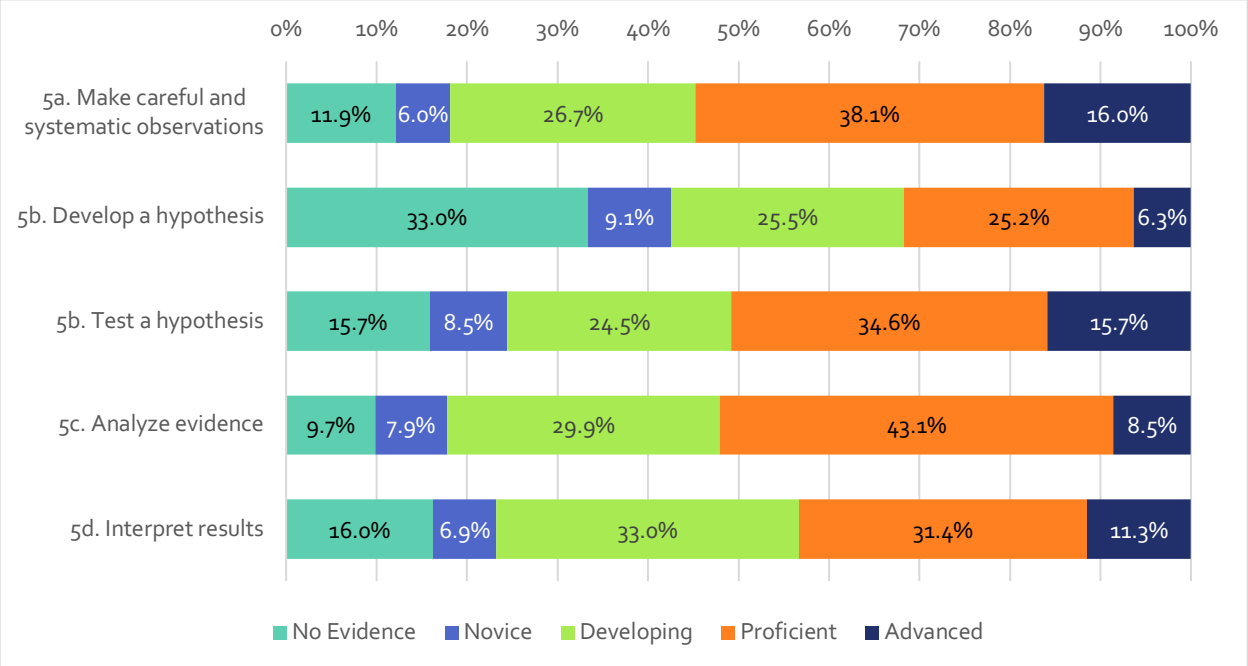
It is common for large lower-division lecture courses in the sciences to use multiple-choice exams as their primary, or only, form of assessment. For courses that use only these kinds of

exams, faculty were instructed to submit a document that mapped items from a selected exam to the Mason Core learning outcomes, and then submit student performance data for these items. While most faculty submitting exams did complete this activity, the submissions were inconsistent, and it proved unworkable to compile the results in any meaningful way. Thus, exam data were not included in the assessment results. In future, should this kind of assessment be conducted again, it will be important to solve this challenge.

### *Lab and Fieldwork Report Samples*

Lab and fieldwork reports for general education science courses contain similar elements across disciplines, thus we have reasonable confidence that the rubric used for this assessment was valid. Figure 34 displays results from 318 ratings on the Lab Reports Rubric. A Pearson's Chi-Square test revealed differences between 100- and 200-level courses. Samples from the 200-level courses were rated significantly higher for outcomes 5a and 5c only. It should be noted that in the development of the rubric, faculty claimed that it would be unusual for a lab course at the lower-division to expect students to develop a hypothesis; this is partially seen in the results.

*Figure 34. Assessment Results for Lab and Fieldwork Reports Samples from Lab Courses*

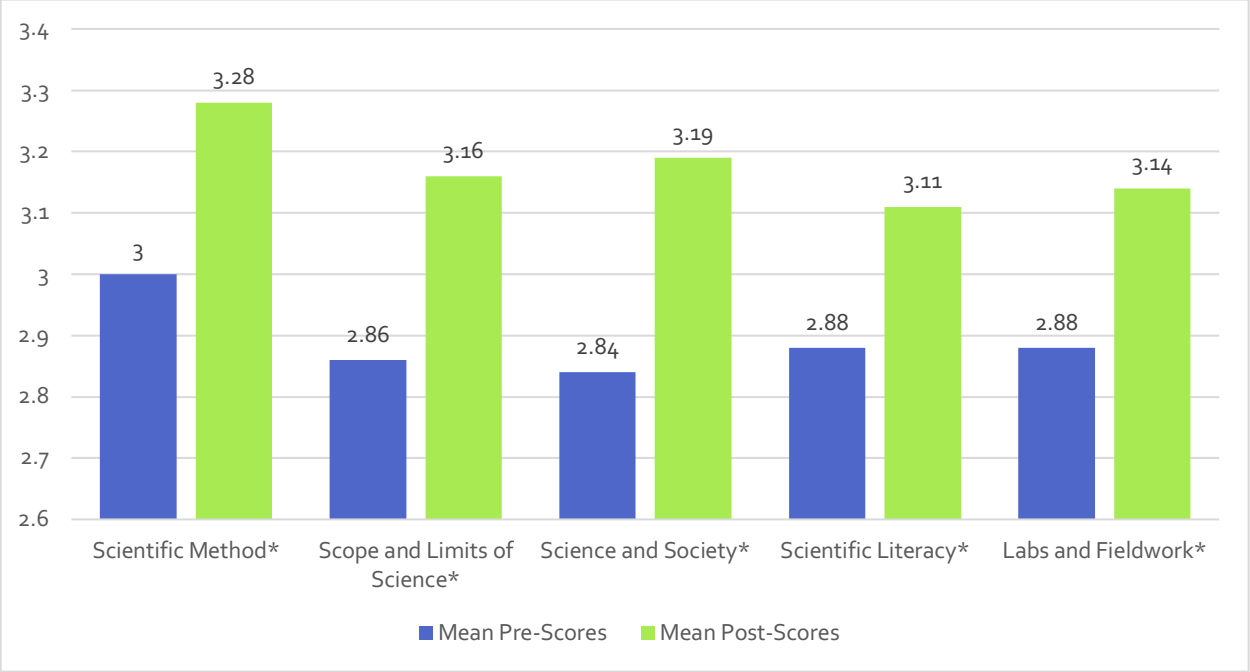



N = 318

## Student Self-Assessment

All students who were enrolled in a Mason Core Natural Sciences course during the assessment period received an online self-assessment survey at the end of the semester. The retrospective pre-post self-assessment asked students to rate their knowledge and skills on five learning outcomes at the beginning of the semester (pre), and then again at the end of the semester (post). In total, 343 students completed both the pre and post items, resulting in a 5.1% response rate. A t-test pairwise comparison showed significant perceived learning gains on all five outcomes; no significant differences were found between NSL and NSO courses (see Figure 35).

*Figure 35. Mean Scores on Student Learning Self-Assessment*




Mean scores, self-reported on a scale of 1-4, n=343, * $p < .05$

## How do the Results Meet Expectations?

Because this was the first time that these rubrics were used for the assessment of student work products, and because so much of the student work collected from lecture courses could not be assessed using the rubrics, it seems most appropriate to consider these results as preliminary and descriptive. More work is necessary to understand how well the rubrics can be used to assess general education science outcomes. Natural Sciences faculty should consider these results in terms of the learning outcomes identified for their academic programs.

## How are Results Being Used to Improve Students' Educational Experience?

As of this writing, results have not yet been shared with the Mason Core Committee nor the Natural Sciences faculty.

## Limitations of this Assessment

As this was the first time that Natural Sciences learning outcomes were assessed using this method, caution should be taken in interpreting the results. The number and nature of the work samples received were insufficient to test the lecture rubric for validity and reliability. The rubric for lecture courses shows promise as a tool for guiding the language and expectations for the Mason Core Natural Sciences, allowing faculty to plan learning experience that support development of these skills from first through senior years. However, it is not clear that the rubric can be used as an effective assessment of student work.

In general, the working group for this category was challenged to locate and select assessment tools for general education learning outcomes. While the faculty working group agreed that the Mason Core learning outcomes were appropriate and valuable for the program overall, they identified multiple challenges for operationalizing the outcomes for teaching and assessment in discipline-based courses. A reconsideration of how the learning outcomes for the sciences are used in the Mason Core is warranted.

## Assessment Rubric(s)

The Natural Sciences rubrics were developed by a team of Mason Natural Sciences faculty to evaluate student work for the Mason Core learning outcomes in the Natural Sciences. The rubrics were modeled after the AAC&U VALUE rubrics and were informed by existing rubrics from New Mexico Statewide General Education Steering Committee (2018), University of Nevada Reno (nd), and Delaware State University (2016). The rubrics are designed to evaluate student performance on five learning outcomes, with four increasingly sophisticated performance descriptors for each outcome. The rubrics can be used with student projects or similar work products (not suitable for exams), and with lab or fieldwork reports. Most student work will not show evidence of all outcomes; in this case, an additional category for "no evidence" should be made available.

*Table 18. Enrollment in Mason Core Natural Sciences OVERVIEW Courses by Academic Unit, AY2015-19*

| | 2015 | 2016 | 2017 | 2018 | 2019 | TOTAL |
|---|---|---|---|---|---|---|
| Atmospheric, Oceanic, and Earth Sciences | 69 | 55 | 93 | 132 | 131 | **480** |
| Biology | | 4 | | 205 | 530 | **739** |
| Chemistry & Biochemistry | 72 | 64 | 50 | 63 | 88 | **337** |
| Environmental Science and Policy | 57 | 123 | 166 | 193 | 218 | **757** |
| Geography and Geoinformation Science | 198 | 238 | 300 | 255 | 309 | **1,300** |
| New Century/Integrative Studies | 140 | 121 | 24 | 25 | 76 | **386** |
| Nutrition | 601 | 552 | 652 | 769 | 783 | **3,357** |
| Physics | 327 | 342 | 401 | 523 | 590 | **2,183** |
| Anthropology | | 38 | 124 | 142 | 140 | **444** |
| Provost | 239 | 136 | 209 | 240 | 243 | **1,067** |
| **TOTAL** | **1,703** | **1,673** | **2,019** | **2,547** | **3,108** | **11,050** |

*Table 19. Enrollment in Mason Core Natural Sciences Lab-Based LECTURE Courses by Academic Unit, AY2015-19*

| | 2015 | 2016 | 2017 | 2018 | 2019 | TOTAL |
|---|---|---|---|---|---|---|
| Atmospheric, Oceanic, and Earth Sciences | 1,022 | 1,025 | 914 | 1,040 | 1,160 | **5,161** |
| Biology | 2,784 | 2,681 | 2,583 | 2,466 | 2,532 | **13,046** |
| Chemistry | 1,919 | 2,030 | 1,840 | 1,866 | 1,881 | **9,536** |
| College of Science | 126 | 78 | | | | **204** |
| Computational & Data Sciences | | | 30 | 105 | 136 | **271** |
| Environmental Science and Policy | 743 | 687 | 663 | 543 | 370 | **3,006** |
| Geography and Geoinformation Science | 36 | 61 | 61 | 75 | 49 | **282** |
| Physics & Astronomy | | | 3,698 | 3,713 | 3,414 | **10,825** |
| Physics/Astronomy/CompDataSci | 3,482 | 371 | | | | **3,853** |
| Integrative Studies | | | | | 280 | **280** |
| **TOTAL** | **10,112** | **6,933** | **9,789** | **9,808** | **9,822** | **46,464** |

*Figure 36. Five-Year Enrollment Trends in Mason Core Natural Sciences ALL Lecture Courses by Academic Unit, AY2015-19*

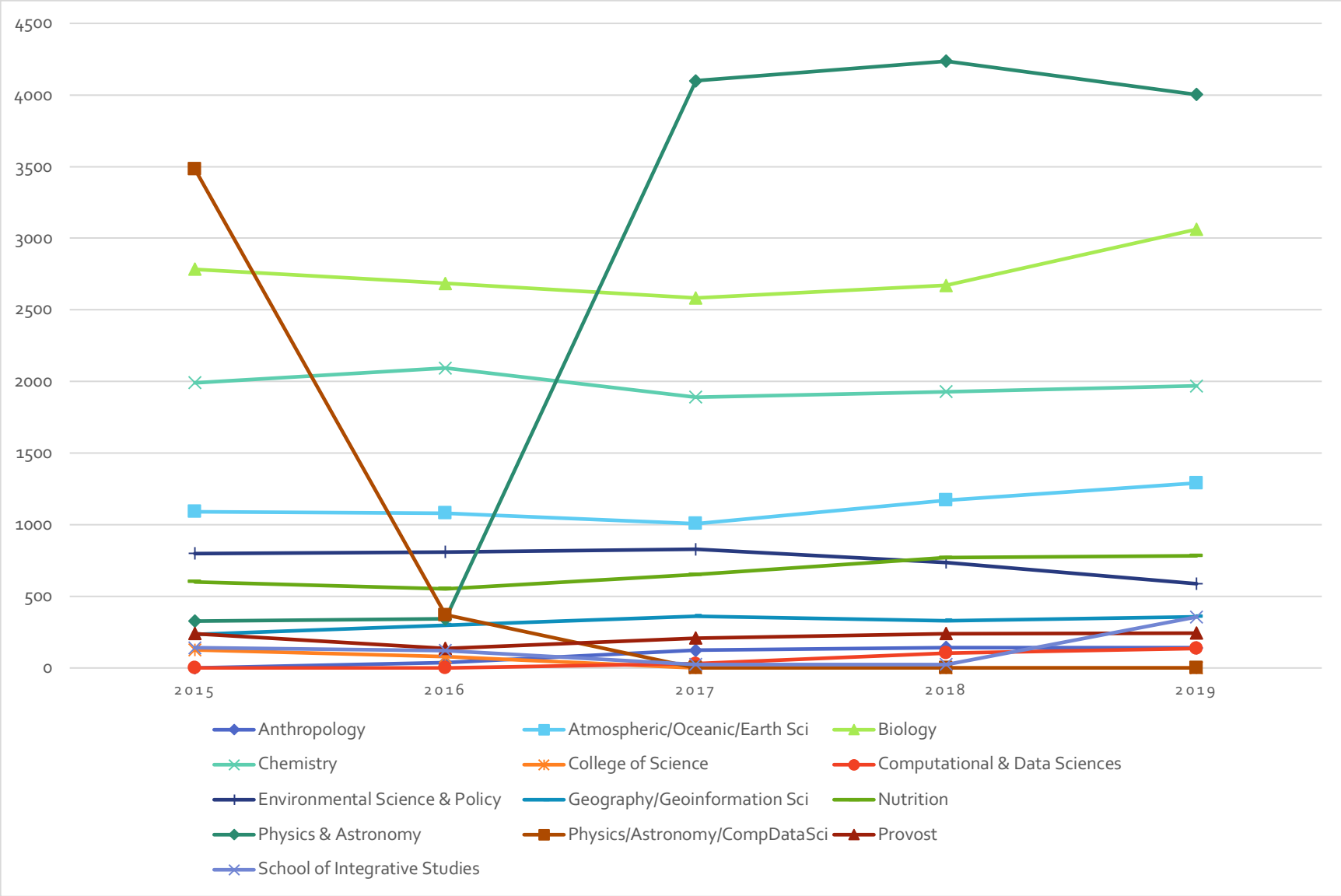


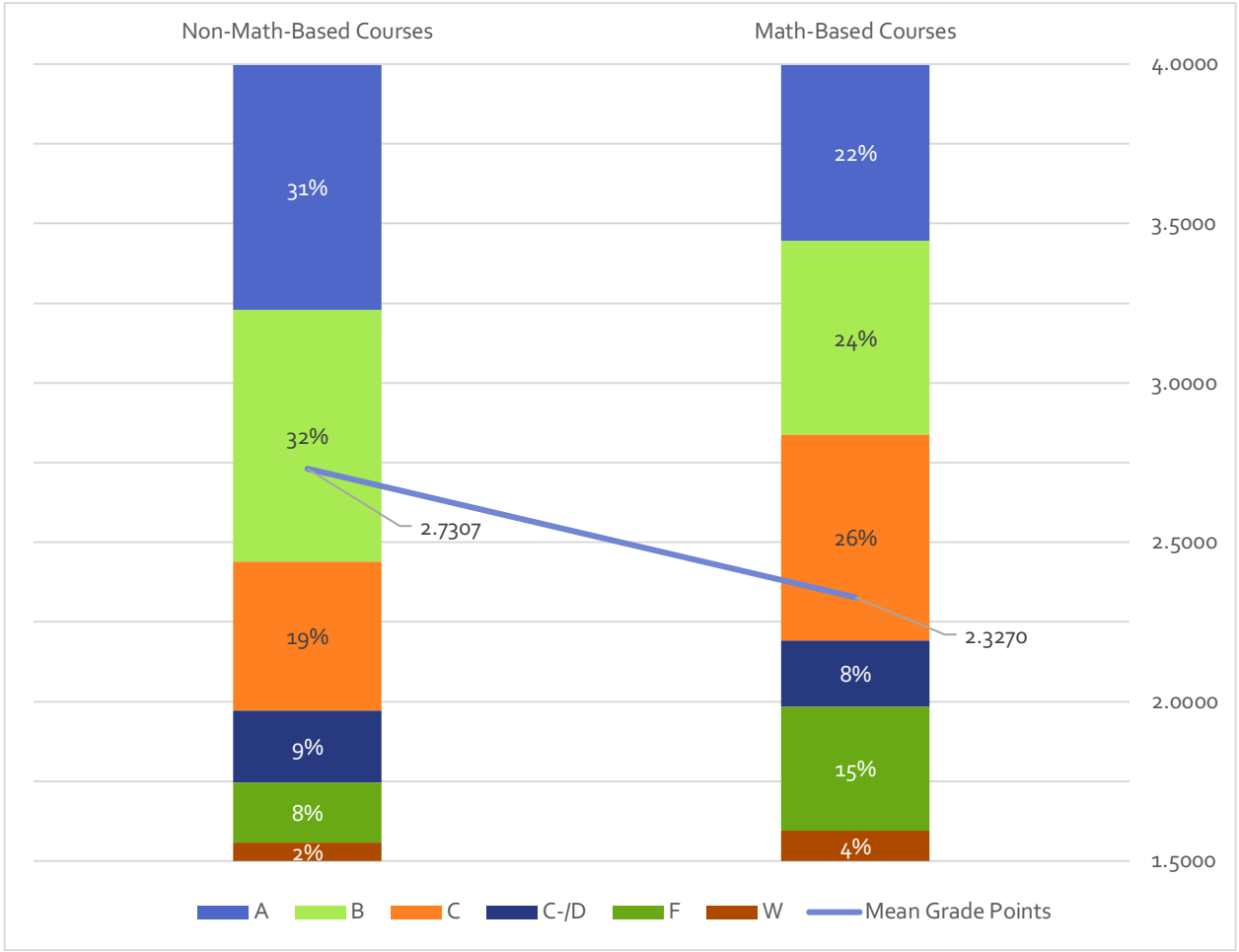
*Table 20. Courses Approved for Mason Core Natural Sciences Category*

| Course | Title | Offered in Fall 2019 | Included in the Assessment |
|---|---|---|---|
| **Natural Science Overview (Non-Lab)** | | | |
| **ANTH 135** | Introduction to Biological Anthropology | X | |
| **ASTR 103** | Astronomy | X | |
| **ASTR 302** | Foundations of Cosmological Thought | X | |
| **BIOL 107** | Intro Biology II Lecture | X | X |
| **BIOL 140** | Plants and People | | |
| **CHEM 101** | Introduction to Modern Chemistry | X | X |
| **CHEM 102** | Chemistry for Changing Times | | |
| **CLIM 101** | Global Warming: Weather, Climate, and Society | X | X |
| **EVPP 201** | Environment and You: Issues for the Twenty-First Century | X | X |
| **GEOL 134** | Evolution and Extinction | | |
| **GGS 102** | Physical Geography | X | X |
| **INTS 103** | Human Creativity: Science and Art | | |
| **INTS 211** | Introduction to Conservation Studies | | |
| **INTS 301** | Science in the News | X | X |
| **NEUR 101** | Introduction to Neuroscience | X | X |
| **NUTR 295** | Introduction to Nutrition | X | X |
| **PHYS 106** | The Quantum World: A Continuous Revolution in What We Know and How We Live | | |
| **PROV 301** | Great Ideas in Science | X | X |
| | | | |
| **Natural Science with Lab** | | | |
| **ASTR 111** | Introductory Astronomy: The Solar System | X | X |
| **ASTR 112** | Introductory Astronomy Lab: The Solar System | X | X |
| **ASTR 113** | Introductory Astronomy: Stars, Galaxies, and the Universe | | |
| **ASTR 114** | Introductory Astronomy Lab: Stars, Galaxies, and the Universe | | |
| **ASTR 115** | Finding New Worlds | | |
| **BIOL 103** | Introductory Biology I | X | X |
| **BIOL 106** | Introductory Biology II Laboratory | X | X |
| **BIOL 213** | Cell Structure and Function | X | X |
| **CDS 101** | Introduction to Computational and Data Sciences | X | X |
| **CDS 102** | Introduction to Computational and Data Sciences Lab | X | X |

| Course | Title | Offered in Fall 2019 | Included in the Assessment |
|---|---|---|---|
| **CHEM 103** | Chemical Science in a Modern Society | X | X |
| **CHEM 104** | Chemistry for Changing Times | | |
| **CHEM 155** | Introduction to Environmental Chemistry I | | |
| **CHEM 156** | Introduction to Environmental Chemistry II | | |
| **CHEM 211** | General Chemistry I | X | X |
| **CHEM 212** | General Chemistry II | X | X |
| **CHEM 213** | General Chemistry Laboratory I | X | X |
| **CHEM 214** | General Chemistry Laboratory II | X | X |
| **CHEM 271** | General Chemistry for Engineers Lecture | X | X |
| **CHEM 272** | General Chemistry for Engineers Lab | X | X |
| **CLIM 102** | Introduction to Global Climate Change Science | | |
| **CLIM 111** | Introduction to the Fundamentals of Atmospheric Science | X | X |
| **CLIM 112** | Introduction to the Fundamentals of Atmospheric Science Lab | X | X |
| **EVPP 108** | Ecosphere - Introduction to Environmental Science I- Lecture | X | X |
| **EVPP 109** | Ecosphere- Introduction to Environmental Science I- Lab | X | X |
| **EVPP 110** | The Ecosphere: An Introduction to Environmental Science I | X | X |
| **EVPP 111** | The Ecosphere: An Introduction to Environmental Science II | X | X |
| **EVPP 112** | Ecosphere: Introduction to Environmental Science II- Lecture | X | X |
| **EVPP 113** | Ecosphere: Introduction to Environmental Science II–Lab | X | X |
| **GEOL 101** | Introductory Geology I | X | X |
| **GEOL 102** | Introductory Geology II | X | X |
| **GGS 121** | Dynamic Atmosphere and Hydrosphere | X | X |
| **INTS 210** | Sustainable World | X | X |
| **INTS 311** | The Mysteries of Migration: Consequences for Conservation | X | X |
| **INTS 401** | Conservation Biology | | |
| **INTS 403** | Conservation Behavior | X | X |
| **PHYS 103** | Physics and Everyday Phenomena I | X | X |
| **PHYS 104** | Physics and Everyday Phenomena II | | |
| **PHYS 111** | Introduction to the Fundamentals of Atmospheric Science | X | X |
| **PHYS 112** | Introduction to the Fundamentals of Atmospheric Science Lab | X | X |
| **PHYS 160** | University Physics I | X | X |
| **PHYS 161** | University Physics I Laboratory | X | |

| Course | Title | Offered in Fall 2019 | Included in the Assessment |
|---|---|---|---|
| **PHYS 243** | College Physics I | X | X |
| **PHYS 244** | College Physics I Lab | X | X |
| **PHYS 245** | College Physics II | X | X |
| **PHYS 246** | College Physics II Lab | X | X |
| **PHYS 260** | University Physics II | X | X |
| **PHYS 261** | University Physics II Laboratory | X | X |
| **PHYS 262** | University Physics III | X | X |
| **PHYS 263** | University Physics III Laboratory | X | X |

*Figure 37. Grades Distribution by Math-Based Content, AY17-19*




Independent-samples t-test found significant differences between math-based and non-math-based courses (N = 18,273; $p < .05$)

# Oral Communication

## Description and Learning Outcomes

Oral communication competency at George Mason University is defined as the ability to use oral communication as a way of thinking and learning as well as sharing ideas with others. The Mason Core program identifies numerous learning goals in oral communication, which are addressed specifically in two Communication courses, COMM 100: Public Speaking and COMM 101: Fundamentals of Communication. Common to both courses are these four learning outcomes:

1. Students will demonstrate understanding of and proficiency in constructing and delivering multiple message types.
2. Students will understand and practice effective elements of ethical verbal and nonverbal communication.
3. Students will develop analytical skills and critical listening skills.
4. Students will understand the influence of culture in communication and will know how to cope with cultural differences when presenting information to an audience.

Each of these two courses also has a more specific set of learning outcomes specifically for the course, as outlined below.

### *COMM 100: Public Speaking*

It is important that students learn to develop communication skills and learn how to present findings to others. *This is both a theory and a skills course, and the primary goal is for students to gain competence in public speaking.* To achieve this goal, students will engage in various activities, assignments, etc. By the end of this course, students will be able to:

1. Understand the communication process and the ways that culture and diverse experiences impact the sharing of meaning.
2. Analyze the audience and situation and adapt your speech to the specific cultural and social context in which it will be delivered.
3. Conduct research and evaluate the quality of support materials and their appropriateness for use in a particular context.
4. Prepare full sentence preparation outlines that include appropriate organization, well-supported claims, reasoned arguments, and sensitivity to the rhetorical situation.
5. Perform a series of speeches using effective delivery techniques, presentation aids (including PowerPoint), and ethical communication practices.

6. Explain complex ideas to non-expert audiences and advocate for significant causes using appropriate deductive and inductive reasoning.
7. Practice effective listening in order to evaluate the public communication of others and provide constructive feedback through a series of peer workshops, peer evaluations, self-evaluations, and course evaluations.

### *COMM 101: Fundamentals of Communication (previously titled Interpersonal and Group Interaction)*

It is important that you learn to develop your communication skills and that you learn how to present your findings to others. *This is both a theory and a skills course, and our primary goal is for you to gain competence in a variety of interpersonal, public speaking, and small group communication situations.* In order to achieve our goal, we will engage in various activities, assignments, etc. By the end of this course, you will be able to:

1. Monitor your own verbal and nonverbal communication practices, understand the role of culture and perception in interactions, and communicate ethically and effectively in interpersonal, public speaking, and group communication interactions.
2. Identify and explain fundamental communication processes, including models of communication, language, nonverbal communication, and listening.
3. Practice effective listening in order to understand, evaluate, and respond to others' messages.
4. Understand how interpersonal relationships develop and are maintained, and analyze and manage interpersonal conflict situations.
5. Conduct research and evaluate the quality of support materials and their appropriateness for use when explaining complex ideas to non-expert audiences.
6. Prepare full-sentence outlines and deliver speeches that include appropriate organization, well-supported claims, reasoned arguments, effective delivery, presentation aids (including PowerPoint), and adaptation to a specific audience and rhetorical situation.
7. Participate effectively in a small group to accomplish a team-based problem-solving task and be able to analyze and utilize the most appropriate leadership styles, task roles, and maintenance roles for that specific small group situation.

## Approved Courses and Enrollment

Students are required to pass one of the courses approved for Oral Communication or transfer in an appropriate course. Students may also seek a waiver through a testing process. Oral Communication courses enroll over 3,600 students each year with an average class size of 20

across two departments, with the majority enrolled in COMM 100 and COMM 101 (see Table 21). Figure 40 shows enrollment trends over the past five years by course.

## Courses Included in Assessment

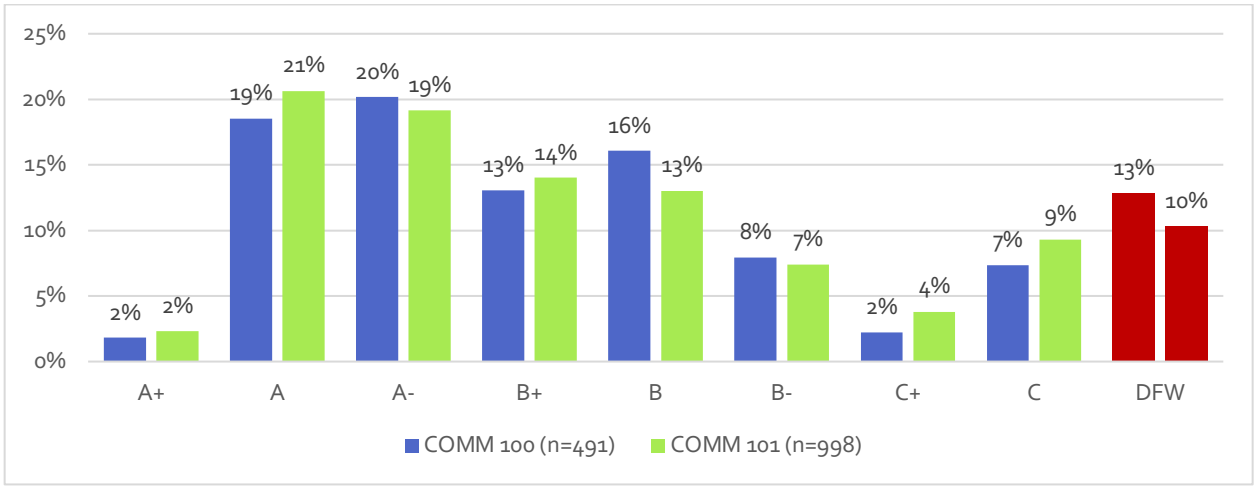
COMM 100 and 101 are the focus of this assessment. These courses are assessed continually by the Basic Course Director, who is responsible for all aspects of the curriculum and instruction of these courses, and the assessment findings are used to update and refine the course each year for continuous improvement. All sections of COMM 100 and COMM 101 have been included in assessment each semester since fall 2014, and different analyses are run each semester, depending on which outcomes are the particular focus. Many of these assessments are a part of the Basic Course Director's research program, so IRB approval is sought each semester, and references to some of the published studies resulting from assessments during this timeframe will be included in this report.

Unlike many Mason Core courses, COMM 100 and COMM 101 are highly standardized and use the same textbook, syllabus, assignments, grading rubrics, and Blackboard shells each semester. Each spring, the Basic Course Director, Basic Course Coordinator, and the entire COMM 100 and 101 instructional team discuss revisions that might be needed to improve the course, based both of classroom experience and assessment findings, and those adjustments are typically piloted in a few sections during the summer term and implemented across all sections of these courses in the fall semester. This allows us to continually improve the course and respond to students needs as quickly as possible.

### *Enrollment and Grades Distribution*

A total of 1,489 students enrolled in COMM 100 and COMM 101 in the assessment period, spring 2018. Of these students, 87% passed COMM 100 and 90% passed COMM 101 with a C or above (see Figure 38).

*Figure 38. Grades Distribution for COMM 100 and COMM 101 in spring 2018*



## Assessment Methods

Student performance on the learning outcomes is assessed every semester using established rubrics. Gradebooks and attendance records are collected from all sections every semester, and student work samples are collected from every section using systematic sampling. (The program selects the 4th, 9th, and 15th student on each roster; courses are capped at 24 per section or lab). Student learning is assessed by content experts on multiple measures.

## Learning Outcomes Assessment Results

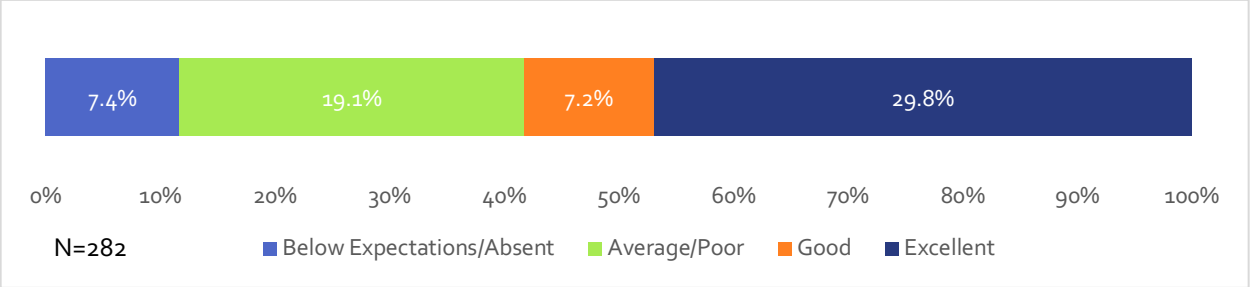
One of the program's most comprehensive outcomes assessments was completed using data from spring 2018, and partial results from those assessments are published in the *Basic Communication Course Annual* (Broeckelman-Post, Hyatt Hawkins, Arciero, & Malterud, 2019; Broeckelman-Post, Malterud, Arciero, & Hyatt Hawkins, 2020). In those studies, the authors examined the quality of public speaking performances (measured in a separate assessment outside of the classroom to mitigate instructor effects; see rubric on page X), course performance (measured using gradebook items), and several self-report measures (engagement, communication apprehension, communication competence, and interpersonal communication competence) across four formats of the oral communication courses: fully online COMM 100, fully face-to-face COMM 100, full face-to-face COMM 101, and a pilot version of a lecture-lab format of the COMM 101. For the most part, students in all formats performed similarly on all of our measures of assessment, but there were a few noteworthy findings:

- The speeches in the online COMM 100 courses had slightly stronger introductions and conclusions in the speech performances, as well as stronger behavioral engagement than the face-to-face COMM 100 courses. The face-to-face courses had lower DFW rates (12%) than the fully online courses (22%). However, the overall speech quality, attendance, courses performance, all other self-report measures (including changes in those measures as a result of taking the course) were statistically identical across both versions of the course.
- The speeches in the lecture-lab version of COMM 101 had stronger introductions, bodies, and overall impact scores in their speeches than in the traditional face-to-face model for the course. The lecture-lab model also had higher attendance and higher engagement on all types of engagement. In this pilot, the DFW rate in the lecture-lab model was slightly higher (15%) than in the traditional face-to-face model (10%), but that difference is partly attributed to the unfamiliar format during the pilot and has since leveled out. The overall quality of speeches, course performance, and all other self-report measures were statistically identical for both versions of the course.
- The quality of speeches given in COMM 100 and COMM 101 was statistically identical, but students had higher engagement in the COMM 101 course. Exam scores in COMM 100 were slightly higher, but the COMM 100 course also included far less content than the COMM 101 course.

- In all formats of the course, students experienced significant reductions in communication apprehension and increases in communication competence and interpersonal communication competence.

A random sample of video recordings of explanatory speeches was taken from each course format, largely to equalize group sizes in order to run the analyses described above. Of the 300 speeches, 18 could not be graded because of technical problems (poor recording quality, no recorded audio, etc.). Of the speeches that were gradable, 37% were rated as Excellent or Good (see Figure 39).

*Figure 39. Overall Performance on Explanatory Speeches, Spring 2018*




Additional assessments have resulted in the following findings:

- Female students generally have higher public speaking anxiety and lower self-perceived communication competence than their male counterparts (Broeckelman-Post & Pyle,2017), but there is no difference in the quality of public speaking performances for male and female students (Broeckelman-Post, Hyatt Hawkins, Murphy, Otusanya, & Kueppers, 2020).
- There is no difference between male and female students or racial/ethnic group in outcomes achievement, though some groups are slightly more comfortable in COMM 101 (Broeckelman-Post & Pyle, 2017; Broeckelman-Post, Hyatt Hawkins, Murphy, Otusanya, & Kueppers, 2020)
- L1 (English-only speakers), Generation 1.5 (speak a language other than English as a first language and/or at home, but have attended English-speaking schools), and L2 (English Language Learners) students in integrated sections of these courses have nearly identical levels of performance in these courses, which suggests that we are meeting the needs of our linguistically diverse students well in our classes. The only gap was that L2 students struggled a bit more with source evaluation than their L1 and Gen 1.5 peers, which could be due to a lack of familiarity with American media. However, our INTO-Mason students and Mason-Korea students, many of whom are taking these courses while in academic English language development programs, often lag behind on some measures (Broeckelman-Post, 2019; Chang & Broeckelman-Post, in press).

- Visiting the Communication Center (which opened in fall 2018) even once to prepare for the Explanatory Speech resulted in a 6% increase in performance on that speech, regardless of whether the coaching appointment was for help with research, topic generation, outlining, or delivery (Brophy, Adebayo, & Broeckelman-Post, under review). Since then, more intensive training has been developed for the Communication Center Coaches, and another assessment is underway to find out whether this effect is actually stronger (as our instructors consistently report is the case in their observations).
- Students find the Communication Center Coaches to be friendly, approachable, and helpful, both on helping clarify the assignments and providing feedback. The basic communication program plans to do more to help students be aware of the Communication Center and help them see the transfer of skills to their disciplines (Malterud & Stewart, under review; Stewart, Malterud, Lawrence, & Broeckelman-Post, under review).

## How do the Results Meet Expectations?

Our assessments show that COMM 100 and COMM 101 are consistently meeting and exceeding expectations for student outcomes in Oral Communication. In 2016, this course program met the Program of Excellence Award from the National Communication Association Basic Course Division in recognition of the program's strong student performance, quality curriculum and assessment design, and ongoing adaptations to meet student needs.

## How are Results Being Used to Improve Students' Educational Experience?

There are several minor changes that are made in the course each year, but there are also several larger changes that have been made that are summarized here:

- Fall 2013: sheltered sections of courses were created for INTO-Mason and Mason-Korea
- 2013-2014: COMM 100 underwent a full curriculum revision
- 2014-2015: COMM 101 underwent a full curriculum revision
- 2015-2016: Piloted and launched a fully online COMM 100 course format
- 2017-2018: Planned a piloted a lecture-lab model of COMM 101 in response to campus classroom shortages, a need for more consistent content delivery, and challenges with hiring a consistent team of instructors. In this format, the Basic Course Director teaches the online component of the course, and student meet in the classroom with instructors for two hours a week for the interactive component of the course (discussion, activities, workshops, presentations, etc.). At this time, the Volgenau School of Engineering and Computer Science Department changed their requirements to allow all students to take COMM 100 or COMM 101, rather than restricting enrollment to COMM 100.

- 2018-2019: Launched the lecture-lab model of COMM 101 and opened the Communication Center. All students are now required to visit the Communication Center for individualized communication skills coaching at least once during the semester as part of the instruction of the course, though many students choose to visit the Communication Center much more often.
- Summer 2019: Piloted a fully online COMM 101 course, in response to the development of several fully online undergraduate degree programs.
- Fall 2019: Revised online portion of lecture-lab course in response to student feedback, including the development of a complete set of new interactive online learning modules. All of these modules were revised again before the spring 2020 semester after we found that a technical problem associated with a Blackboard partner resulted in the failure to record grades 0.9% of the time.

Currently, the Basic Course program is working on the following initiatives:

- Beginning in fall 2020, we will exclusively offer the COMM 101: Fundamentals of Communication Course. As our assessment described above showed, students are building public speaking skills just as well in this course as in COMM 100 (and better, with the addition of the Communication Center requirement in COMM 101) but are also simultaneously building many other much-needed skills in interpersonal, intercultural and group/team communication. Moving to a single course will allow us to put even more energy and attention into making this course the best course possible for our students, rather than splitting attention across two courses, and will help to streamline training for our new instructors.
- We are continuing to develop training for our Communication Center Coaches and are conducting assessments on the effects of the Communication Center in enhancing the effectiveness of this course.
- To address the gaps for our INTO-Mason students, we have tried to move the COMM 101 course to the second semester that students are in their English language learning program, where possible. We have some data now and will be analyzing it in the near future to see if delaying this course by a semester helps improve student performance. Additionally, we did a pilot study in the fall in which some INTO-Mason students were integrated into mainstream sections of COMM 101 in groups of 5-7, while others remained in sheltered sections. We will be completing this analysis soon and using it to make decisions about how to best serve our INTO-Mason students moving forward.
- Each year, we update and adapt our instructor training. Currently, we have short online pre-training along with some required reading over the summer, a one-week Basic Course Academy that is held the week before the fall semester, and tri-weekly instructor meetings for our entire instructor team. New instructors who are enrolled in a Communication graduate program are also required to take COMM 653: Instructional

Communication during their first semester, and we are considering ways to future enhance our instructor training in the future.

## Limitations of this Assessment

This assessment includes COMM 100 and COMM 101 only, which are introductory courses in communication. The assessment methods are evidence-based and have been tested and refined by disciplinary experts, so the results are reliable. In future, an assessment strategy will be developed for communication in the major, so that skills for graduating seniors can be assessed.

## Assessment Rubric(s)

The rubric that was used to evaluate student public speaking performances in the spring 2018 semester was created in collaboration with several leading communication pedagogy and assessment scholars with the support of a National Communication Association (NCA) Advancing the Discipline Grant, and is intended for use in cross-university assessment. Team members who designed this rubric included Dr. Cheri Simonds and Dr. John Hooker (Illinois State University), Dr. Melissa Broeckelman-Post (George Mason University), Dr. Kristina Ruiz-Mesa (California State University, Los Angeles), Dr. Joshua Westwick and Dr. Karla Hunter (South Dakota State University), Dr. Lindsey Anderson and Dr. Andrew Wolvin (University of Maryland), and Dr. LeAnn Brazeal (Missouri State University). This rubric is aligned with the NCA Core Competencies for Oral Communication as well as the Social Science Research Council outcomes and objectives for Measuring College Learning in Public Speaking, to which many of these individuals also contributed.

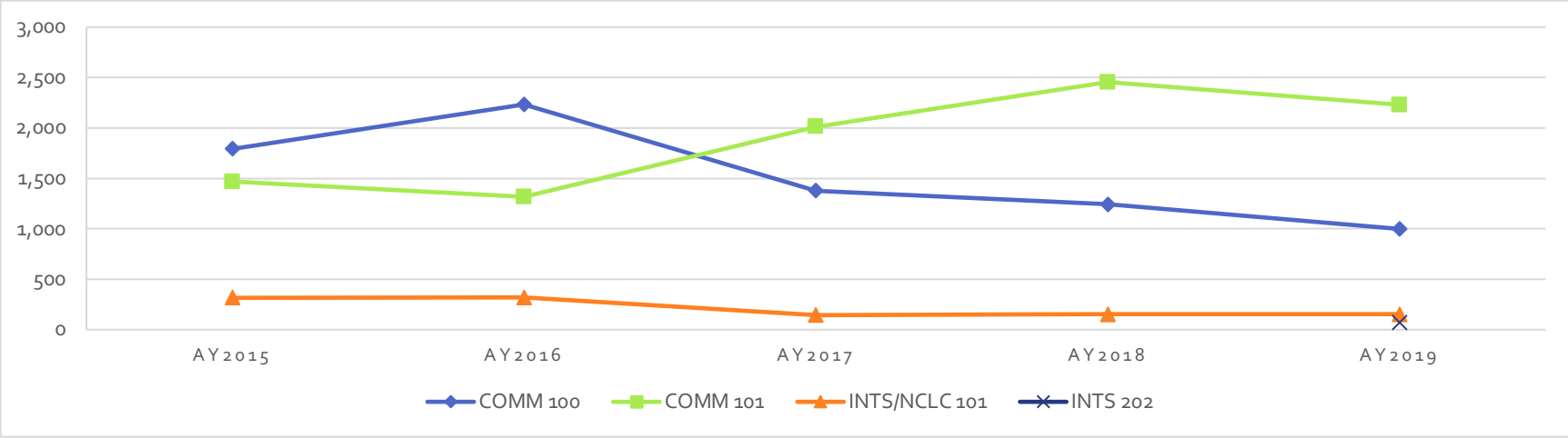
For course performance, all assignments were evaluated using standardized rubrics that are published in our custom course textbooks and in our standardized Blackboard course shells that are used to pre-load content into each section of the course.

*Table 21. Enrollment in Mason Core Oral Communication Courses, AY2017-19*

| | AY2017 | | | AY2018 | | | AY2019 | | |
|---|---|---|---|---|---|---|---|---|---|
| | **#Course Sections** | **Enrollment** | **Ave Class Size** | **#Course Sections** | **Enrollment** | **Ave Class Size** | **#Course Sections** | **Enrollment** | **Ave Class Size** |
| **COMM 100** | 67 | 1,379 | 21 | 59 | 1,243 | 21 | 46 | 999 | 22 |
| **COMM 101** | 82 | 2,013 | 25 | 105 | 2,456 | 23 | 12 | 2,229 | 20^ |
| **INTS/NCLC 101** | 8 | 144 | 18 | 6 | 154 | 26 | 6 | 152 | 25 |
| **INTS 202** | NA | | | NA | | | 3 | 72 | 24 |
| **TOTAL** | **157** | **3,536** | **19** | **170** | **3,853** | **18** | **67** | **3,452** | **19** |

^In AY2019, COMM 101 implemented a strategy to move to a lecture-lab format for the course in which the lecture portion of the course is taught online and the lab portion of the class is taught in the classroom. Many students delayed taking the course, and after talking with advisors, it seems that this was in part due to the unfamiliar format of the course, and in part because students were not seeing this course if they filtered out online courses when choosing courses for registration.

*Figure 40. Five-Year Enrollment Trends in Oral Communication Courses, AY2015-19*



# Quantitative Reasoning

## Description and Learning Outcomes

1. Students are able to interpret quantitative information (i.e., formulas, graphs, tables, models, and schematics) and draw inferences from them.
2. Given a quantitative problem, students are able to formulate the problem quantitatively and use appropriate arithmetical, algebraic, and/or statistical methods to solve the problem.
3. Students are able to evaluate logical arguments using quantitative reasoning.
4. Students are able to communicate and present quantitative results effectively.

## Approved Courses and Enrollment

Students are required to pass one course approved for Quantitative Reasoning or transfer in an appropriate course. During the assessment period, eleven courses were approved to meet the Quantitative Reasoning requirement:

HNRT 125 A Liberal Arts Approach to Calculus
MATH 106 Quantitative Reasoning
MATH 108 Introductory Calculus with Business Applications
MATH 110 Introductory Probability
MATH 111 Linear Mathematical Modeling
MATH 113 Analytic Geometry and Calculus I
MATH 115 Analytic Geometry and Calculus I(Honors)
MATH 124 Calculus with Algebra/Trigonometry, Part B
MATH 125 Discrete Mathematics I
SOCI 313 Statistics for the Behavioral Sciences
STAT 250 Introductory Statistics I

Quantitative Reasoning courses enroll over 6,500 students each year with an average lecture class size of between 18 and 80 students; recitations maintain smaller class sizes for focused, practical instruction. Table 23 and figure 52 show enrollment trends over the past five years. STAT 250 is the highest enrolled course (28.4% of AY19 enrollment), followed by MATH 113 (19.3%), and MATH 106 (16.2%).

## Courses Included in Assessment

The assessment period included 42 sections of HNRT 125; MATH 106, 108, 110, 111; SOCI 313; and STAT 250 courses taught on all of Mason's campuses and via distance learning in spring 2019. Of the 42 course sections included in the assessment period, 88% submitted materials.

Calculus courses (MATH 113, 108, 124) were part of a long-term pedagogical change project for which learning outcomes and an assessment strategy are in the process of being defined.

## *Enrollment and Grades Distribution*

A total of 3,121 students enrolled in Quantitative Reasoning courses in the assessment period. Of these students, 72.3% passed their courses with a C or above (see Figure 41). Figure 42 displays average final grades by course. Note that the DFW rate approaches 25%.

*Figure 41. Grades Distribution for Mason Core Quantitative Reasoning Courses, Spring 2019*

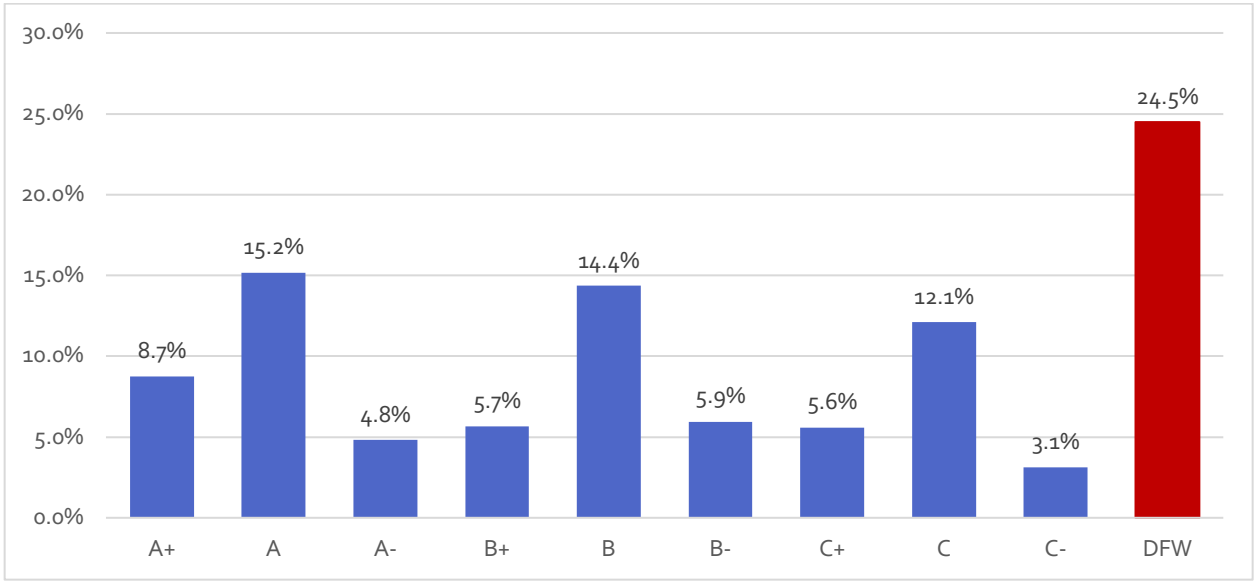
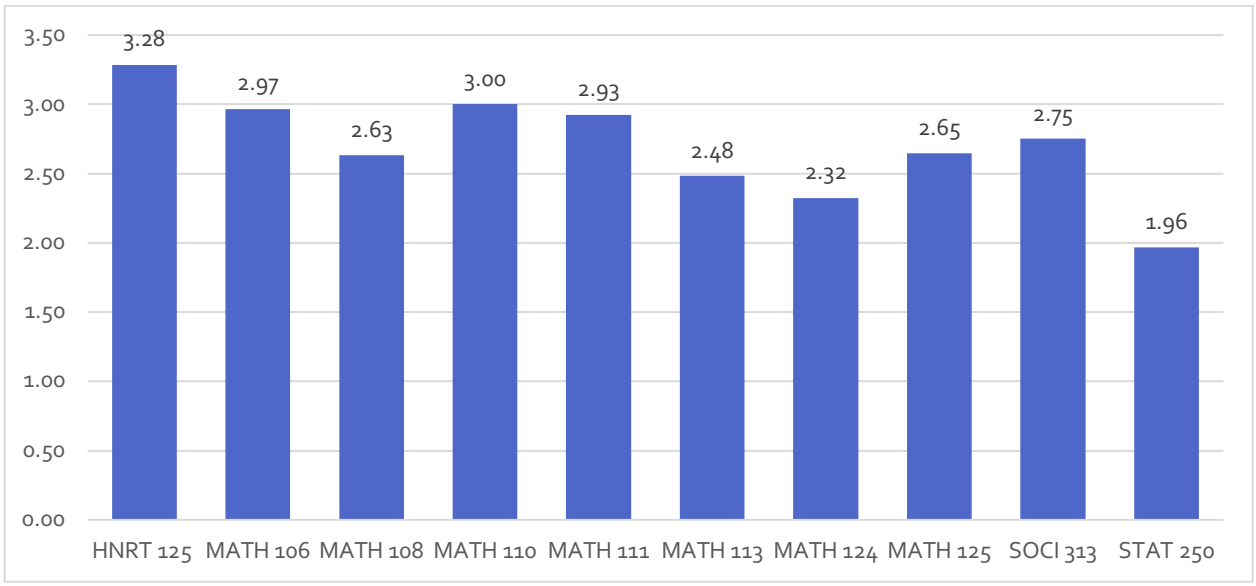



*Figure 42. Average Final Grade by Course, Spring 2019*



## Assessment Methods

Three kinds of work samples were collected for this assessment:

1. Samples from Quantitative Reasoning courses taught in spring 2019
    a. Project-based samples in which students were expected to analyze data
    b. Calculation-based samples in which students solved equations or derived solutions (e.g. exams)
2. Samples from Capstone or Writing Intensive (WI) courses taught in spring 2018—a convenience sample of senior-level work collected across majors from the Critical Thinking and Written Communication assessments conducted in this period. Although the samples were identified as being appropriate for the Quantitative Reasoning assessment, it was not an intentional sampling for quantitative projects. Additionally, the samples represent individual work and not team-based projects that are typical in many fields that emphasize quantitative methods (i.e. engineering, business).

Faculty were asked to submit samples completed in the final third part of the semester and that allowed students to demonstrate their learning on one or more of the Quantitative Reasoning learning outcomes. Samples were selected using randomized course enrollment lists to insure the best possible representative sample.

The **AAC&U Quantitative Literacy VALUE Rubric** was used for this assessment. The rubric was selected by Mason faculty as a tool to assess individual student work on six learning tasks or outcomes that align well to the Mason Core Quantitative Reasoning learning outcomes. The rubric uses four performance descriptors: Benchmark, Emerging Milestone, Advanced Milestone, and Capstone, as well as an option for "no evidence." The performance descriptors are developmental, identifying student performance levels in a context of learning and growth. The rubric is intended to be used across all of the years of a student's college experience, and is not limited to a single course, assignment, or student class level.

Using a process modeled after the VALUE Institute reviewer calibration, faculty reviewers were trained to use the rubric to assess student work. Reviews were normed to produce consistent ratings across reviewers. Reviewers met for an in-person, one-day training and review session and completed the reviews of student work by the end of the day. Reviewers were faculty members who have taught Mason Core Quantitative Reasoning courses and related courses. Reviewers earned a small stipend for their efforts.

Each student work sample was assessed twice. Project-based samples were rated using the rubric. Calculation-based samples were rated a bit differently; the assignment itself was rated on the rubric for expected performance.

## Learning Outcomes Assessment Results

### *Project-Based and Capstone Samples*

Figures 43-48 display results from 224 randomly selected student work samples rated on the rubric, disaggregated by level: "QR" (n = 123) represents samples from the courses approved for Quantitative Reasoning and "In the Major" (n = 101) represents samples from the Capstone courses. The figures include "no evidence" ratings. A rating of "no evidence" was used when the learning outcome could not be detected in the sample; this could mean that either the assignment did not require application of the outcome, or that the student did not demonstrate it. A "no evidence" rating provides important information in aggregate but is given no value for an individual sample.

*Figure 43. Assessment Results for Outcome 1, Interpretation*

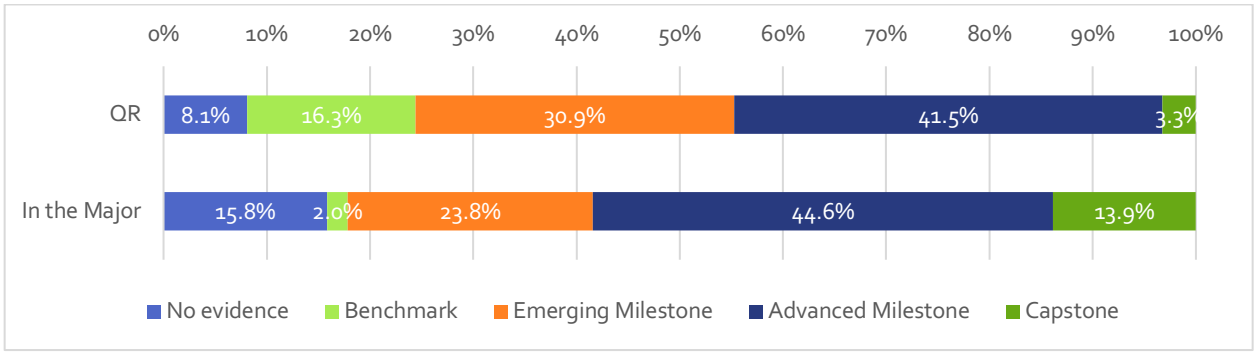



*Figure 44. Assessment Results for Outcome 2, Representation*

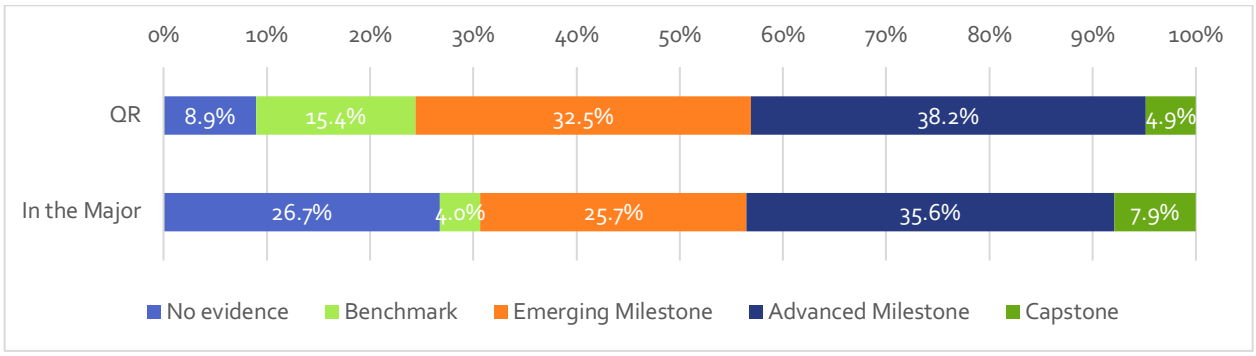


*Figure 45. Assessment Results for Outcome 3, Calculation*

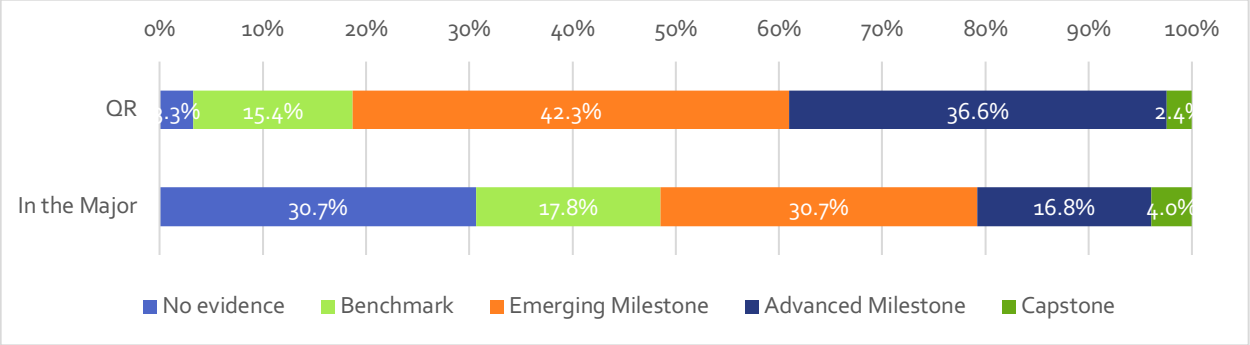



*Figure 46. Assessment Results for Outcome 4, Application/Analysis*

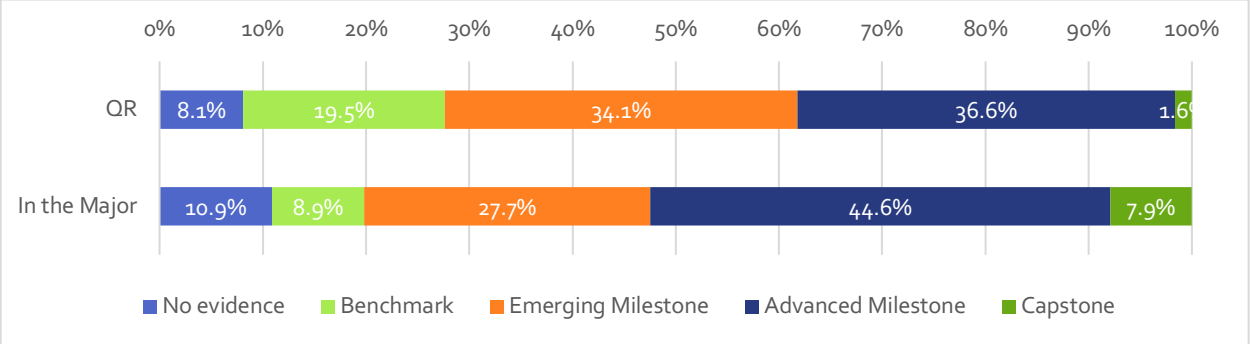



*Figure 47. Assessment Results for Outcome 5, Assumptions*

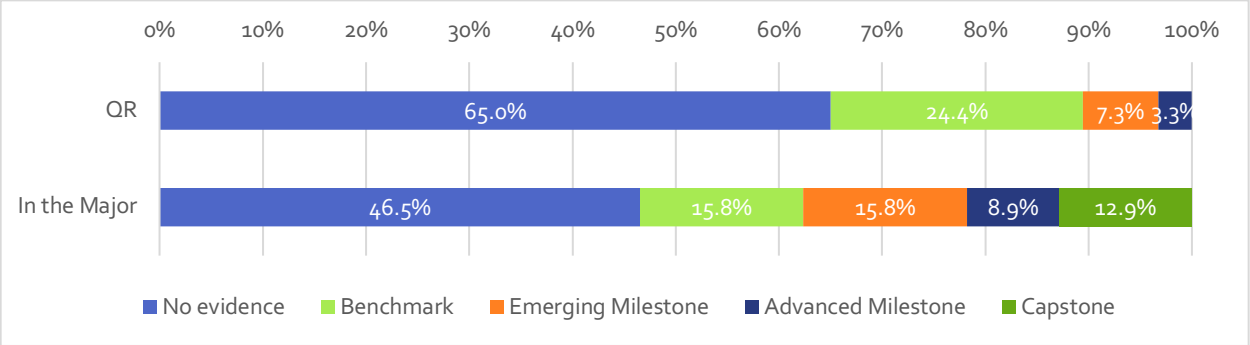
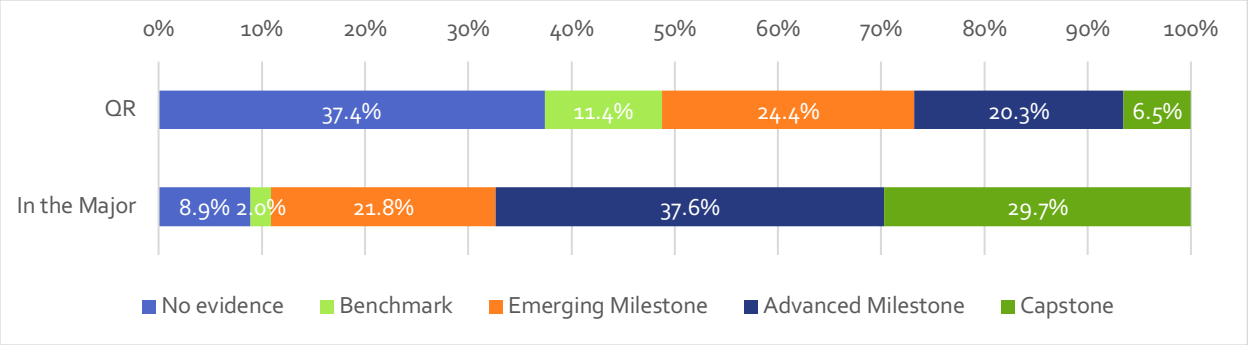


*Figure 48. Assessment Results for Outcome 6, Communication*

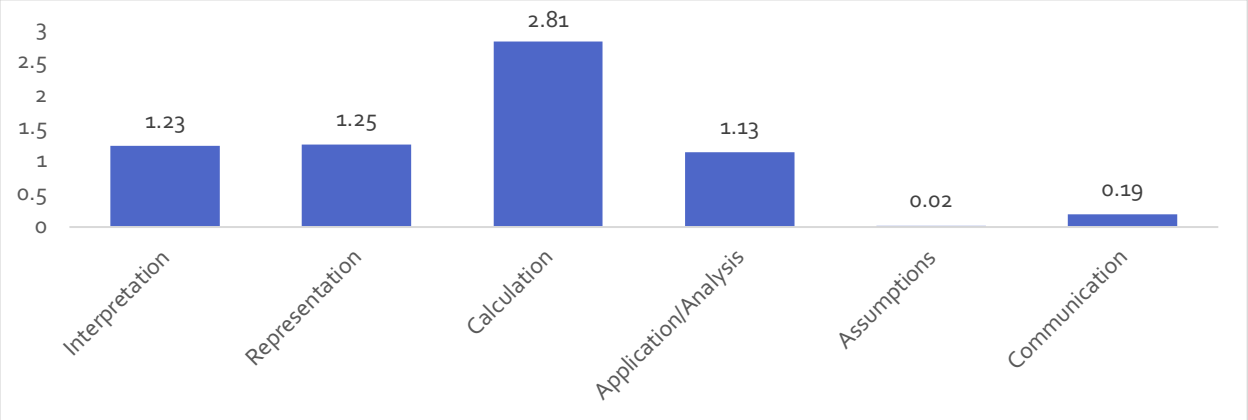



## *Calculation-Based Samples*

Several lower-division QR courses (MATH 106, 108, 111; HNRT 125) submitted exams or quizzes as samples. These calculation-based assignments expected right or wrong answers and, for the most part, did not allow students to show their thinking. Because this presented a challenge to scoring samples on the rubric, it was determined that the *assignment* be rated on the rubric, to understand the level at which QR courses are *expecting* students to perform. This provides some information about course emphases for assessing learning outcomes.

Figure 49 displays mean ratings for the assignments across the four courses; note that because of multiple sections and instructors, the expectations across sections of the same course varied slightly. Overall, **Calculation** was the most emphasized outcome. MATH 108, 111 and HNRT 125 all emphasized **Interpretation** and **Representation** in addition to **Calculation**, but at lower levels. MATH 108 and 111 also emphasized **Application/Analysis**. Very few of these samples expected students to make **Assumptions** or **Communicate** quantitative evidence in support of an argument.

*Figure 49. Mean Ratings of QR Calculation-Based Assignments*




N = 123; Based on a scale of 0-4 where 0=No Evidence, 1=Benchmark, 2=Emerging, 3=Advanced, and 4=Capstone.

## *Highlights from Analysis of Results*

Data were analyzed to ascertain differences among students in achieving the six learning outcomes. Comparison tests were conducted using nonparametric statistics because rubric data are ordinal; Independent-Samples Mann-Whitney *U*, was used when analyzing differences between two groups, and Independent-Samples Kruskal–Wallis *H* test was used to analyze differences across three or more groups or courses. "No evidence" was treated as missing.

An Independent-Samples Mann-Whitney *U* test found differences between the lower-division QR samples and the upper-division In the Major samples on all outcomes except Calculation, with In the Major samples rated significantly higher ($p < .05$) on all five outcomes (see Table 24).

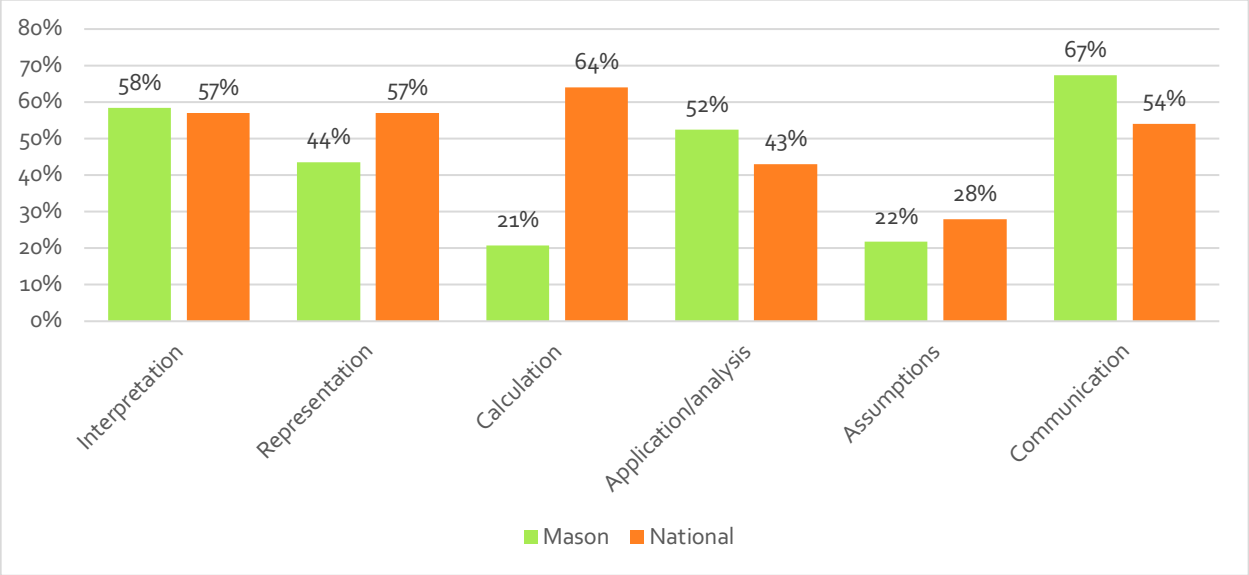
It was determined that the variations in courses and subsequent sample sizes were insufficient to do adequate comparisons by student demographics. Analyses comparing In the Major samples in aggregate did not reveal differences by gender, race, nor transfer status.

## *How do Mason Students Compare?*

In comparing results from a 2017 national study (McConnell & Rhodes, 2017) using samples of student work from seniors at 4-year institutions and Mason's Capstone samples, this assessment provides some information about how Mason students perform compared to their peers on combined rubric ratings of Advanced + Capstone. Similar to Mason, national data revealed that students were *as likely* to show strength in **Interpretation**. Mason students seemed to perform *better* than their national peers in **Application/Analysis** and **Communication**. Note that this is an observational comparison; the raw data from the national study was not available to perform a statistical comparison. See Figure 50.

It is important to note that the samples for Mason's assessment were drawn from a convenience sample from the Capstone assessment efforts, and were not specifically requested for the QR assessment. This likely has bearing on being able to accurately compare student performance to the national samples. In addition, we did not receive individual samples from disciplines for which quantitative reasoning in the senior year is paramount, such as Business and Engineering.

*Figure 50. Comparison of Mason Capstone Samples to National Results*




## Calculus Assessment

During the assessment period, the Calculus series MATH 113, *Analytic Geometry and Calculus I*, and MATH 114, *Analytic Geometry and Calculus II*, was involved in an NSF-funded initiative[7] to increase the use of active learning instructional techniques. In the initial phase of this project, enrollment data were analyzed to determine possible inequities in student performance. Also, project faculty in the Math department sought to understand how a placement test taken at the beginning of MATH 113 could help students select into the appropriate level of Calculus—MATH 113 (standard), MATH 123/124 (two semester sequence for students with limited math background), or MATH 105 (Pre-Calculus). The following sections offers a summary of these analyses in lieu of learning outcomes assessment results.

### *Calculus Enrollment and Grade Performance, AY17-19*

Student enrollment data from AY17-19 were analyzed to understand the enrollment profile and grade performance by gender and race.

- Although institutional undergraduate enrollment was 50/50 female/male during this time period, the Calculus series was more heavily male, with 68% of MATH 113 and 74% of MATH 114 (see Figure 53).

[7] Nelson, J. (PI), Lester, J., Sachs, R., Rosenberg, J., & Foster, S. (Co-PIs). (Funded 2018-2023). *Collaborative research: Fostering a culture of inquiry-based learning by building course-based communities of transformation.* National Science Foundation, Improving Undergraduate STEM Education (IUSE) Program. $1.745 million. Award # NSF 1821589

- Female students earned statistically significantly higher mean grades than male students in both courses (see Figure 54).
- Enrolled students in MATH 113/114 were more likely to be Asian and less likely to be Black/African American or Hispanic/Latino than the institutional undergraduate population (see Figure 55).
- Asian and White students had the highest grades in Calculus courses, while African American students had the lowest grades; differences were statistically significant (see Figure 56).

### *Analysis of Pilot Placement Test, Standardized Test Scores, and Grade Performance*

The Math faculty piloted a math placement test to replace the existing placement test. The test was developed by Math faculty at the University of Colorado Boulder, and comprises 30 multiple-choice items with content in algebra and trigonometry, with only one correct choice per item. The placement test was administered in paper form in MATH 113 recitation sections in the first week of classes of the fall 2019 semester. Results were merged with enrollment data to analyze student performance.

Using Pearson bivariate correlation, placement scores were analyzed against ACT Math scores, SAT Math scores[8], and final course grade for MATH 113 completers. Placement scores were significantly correlated with SAT Math scores ($r^2 = 0.355$, $p < .01$) and course grade ($r^2 = 0.437$, $p < .01$), but not ACT Math scores (see Table 6). SAT Math scores showed a significant but weak positive correlation with course grade ($r^2 = 0.140$, $p < .01$). See Table 22.

Based on the analysis of Mason student scores on the Placement Exam, a score range was proposed to provide guidance to students for enrolling in the course most appropriate to their needs. The Math department is considering adopting the new placement test for an upcoming academic year. The full report is available upon request.[9]

[8] Note that students typically report either SAT or ACT scores to the university, but not both. Transfer students are not required to report standardized test scores, though some do and those are included.
[9] Foster, S. L. (2020). Results of analysis of CU math placement test pilot, fall 2019. George Mason University Office of the Provost.

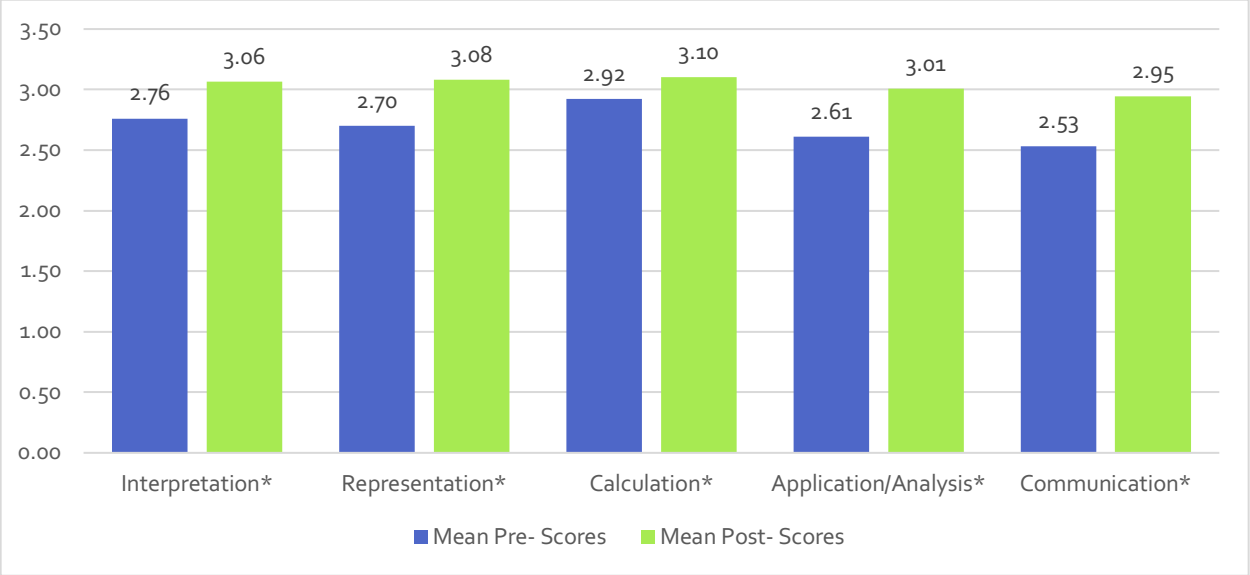
*Table 22. Placement Exam Scores Correlation with ACT Scores, SAT Scores, and MATH 113 Course Grade*

| Descriptive Statistics | | | | | |
|---|---|---|---|---|---|
| | Mean | Std. Deviation | N | | |
| **Total Raw Score** | 20.73 | 4.875 | 617 | | |
| **ACTMathHigh (Official)** | 3.38 | 8.886 | 703 | | |
| **SATMathHigh (Official)** | 486.64 | 280.202 | 703 | | |
| **Grade Points** | 2.5743 | 1.30853 | 674 | | |
| | | | | | |
| **Correlations** | | | | | |
| | | Total Raw Score | ACT Math | SAT Math | Course Grade |
| **Total Raw Score** | Pearson Correlation | 1 | 0.073 | .355** | .437** |
| | Sig. (2-tailed) | | 0.068 | 0.000 | 0.000 |
| | N | 617 | 617 | 617 | 595 |
| **ACTMathHigh (Official)** | Pearson Correlation | 0.073 | 1 | -0.040 | -0.026 |
| | Sig. (2-tailed) | 0.068 | | 0.288 | 0.503 |
| | N | 617 | 703 | 703 | 674 |
| **SATMathHigh (Official)** | Pearson Correlation | .355** | -0.040 | 1 | .140** |
| | Sig. (2-tailed) | 0.000 | 0.288 | | 0.000 |
| | N | 617 | 703 | 703 | 674 |
| **Grade Points** | Pearson Correlation | .437** | -0.026 | .140** | 1 |
| | Sig. (2-tailed) | 0.000 | 0.503 | 0.000 | |
| | N | 595 | 674 | 674 | 674 |
| **. Correlation is significant at the 0.01 level (2-tailed). | | | | | |

## Student Self-Assessment

All students who were enrolled in a Mason Core Quantitative Reasoning course during the assessment period received an online self-assessment survey at the end of the semester. The retrospective pre-post self-assessment asked students to rate their knowledge and skills on five learning outcomes at the beginning of the semester (pre), and then again at the end of the semester (post). In total, 327 students completed both the pre and post items, resulting in a 10.4% response rate. A t-test pairwise comparison showed significant perceived learning gains on all five outcomes (see Figure 51).

*Figure 51. Mean Scores on Student Learning Self-Assessment*




Mean scores, self-reported on a scale of 1-4, n=327, * $p < .05$

## How do the Results Meet Expectations?

Because this was the first time that Mason used the **Quantitative Literacy rubric** to assess student work, these data provide baseline information only. Math faculty and faculty in majors for which quantitative literacy is emphasized should consider these results in terms of the learning outcomes identified for their academic programs. Results for the In the Major samples are inconclusive; to test the efficacy of the rubric for use in the Capstone, the assessment should be repeated with an intentional sample across the majors.

## How are Results Being Used to Improve Students' Educational Experience?

Results have been shared with the Mason Core Committee and the Math department. The NSF IUSE project is currently focused on changing the culture of instruction in Calculus courses, and in the near term, efforts will be expanded to Computer Science faculty. As the rubric was well-received by faculty on the QR working group, it is recommended that the rubric be used as one tool to guide course and assignment design for the development of quantitative literacy.

## Limitations of this Assessment

As this was the first time that quantitative literacy was assessed using this method, caution should be taken in interpreting the results. The rubric shows promise as a tool for guiding the language and expectations for quantitative literacy across the Mason undergraduate experience, allowing faculty to plan learning experience that support development of these skills from first through senior years. Overall, this assessment was well-designed for project-

based work because it allows students to demonstrate their reasoning ability. However, the rubric is limited for use with calculation-based assignments for which there is a right answer and students are not asked to document their mathematical thinking. This finding is consistent with the experience at Fitchburg State University (Berg et. al., 2014), which concluded that more carefully constructed assignment prompts were needed to elicit higher-order thinking. Additionally, the sample sizes for many of the courses were insufficient to perform a robust analysis of results by student demographics; in future assessments, efforts should be made to collect bigger samples of student work that best align with the rubric method.

## Assessment Rubric(s)

The **Quantitative Literacy VALUE Rubric** was selected by a team of Mason Quantitative Reasoning faculty to evaluate student work for the Mason Core learning outcomes in Quantitative Reasoning. The team agreed that the outcomes and performance descriptors were appropriate for the courses they teach, as well as for desired outcomes for undergraduates completing non-mathematics majors.

*Table 23. Enrollment in Mason Core Quantitative Reasoning Courses, AY2015-19*

| | AY2015 | | AY2016 | | AY2017 | | AY2018 | | AY2019 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | #Course Sections | Enroll | #Course Sections | Enroll | #Course Sections | Enroll | #Course Sections | Enroll | #Course Sections | Enroll |
| **HNRT 125** | 3 | 83 | 3 | 89 | 3 | 88 | 3 | 87 | 4 | 107 |
| **MATH 106** | 39 | 1,184 | 40 | 1,105 | 36 | 1,032 | **34** | **1,059** | 29 | 1,072 |
| **MATH 108** | 17 | 880 | 17 | 931 | 18 | 970 | 15 | 947 | 15 | 817 |
| **MATH 110** | 3 | 83 | 2 | 27 | 5 | 151 | 5 | 152 | 6 | 157 |
| **MATH 111** | 5 | 168 | 7 | 278 | 7 | 217 | 7 | 251 | 7 | 227 |
| **MATH 113** | 22 | 1,210 | 21 | 1,185 | 20 | 1,181 | 21 | 1,249 | 21 | 1,282 |
| **MATH 124** | | | 2 | 51 | 2 | 60 | 4 | 105 | 5 | 141 |
| **MATH 125** | 9 | 437 | 12 | 530 | 12 | 626 | 13 | 701 | 13 | 798 |
| **SOCI 313** | | | | | 4 | 105 | 4 | 108 | 4 | 112 |
| **STAT 250** | 24 | 1,768 | 24 | 1,731 | 20 | 2,028 | 23 | 1,881 | 23 | 1,886 |
| **TOTAL** | **122** | **5,813** | **128** | **5,927** | **127** | **6,458** | **129** | **6,540** | **127** | **6,599** |

*Figure 52. Five-Year Enrollment Trends in Mason Core Quantitative Reasoning Courses, AY2015-19*

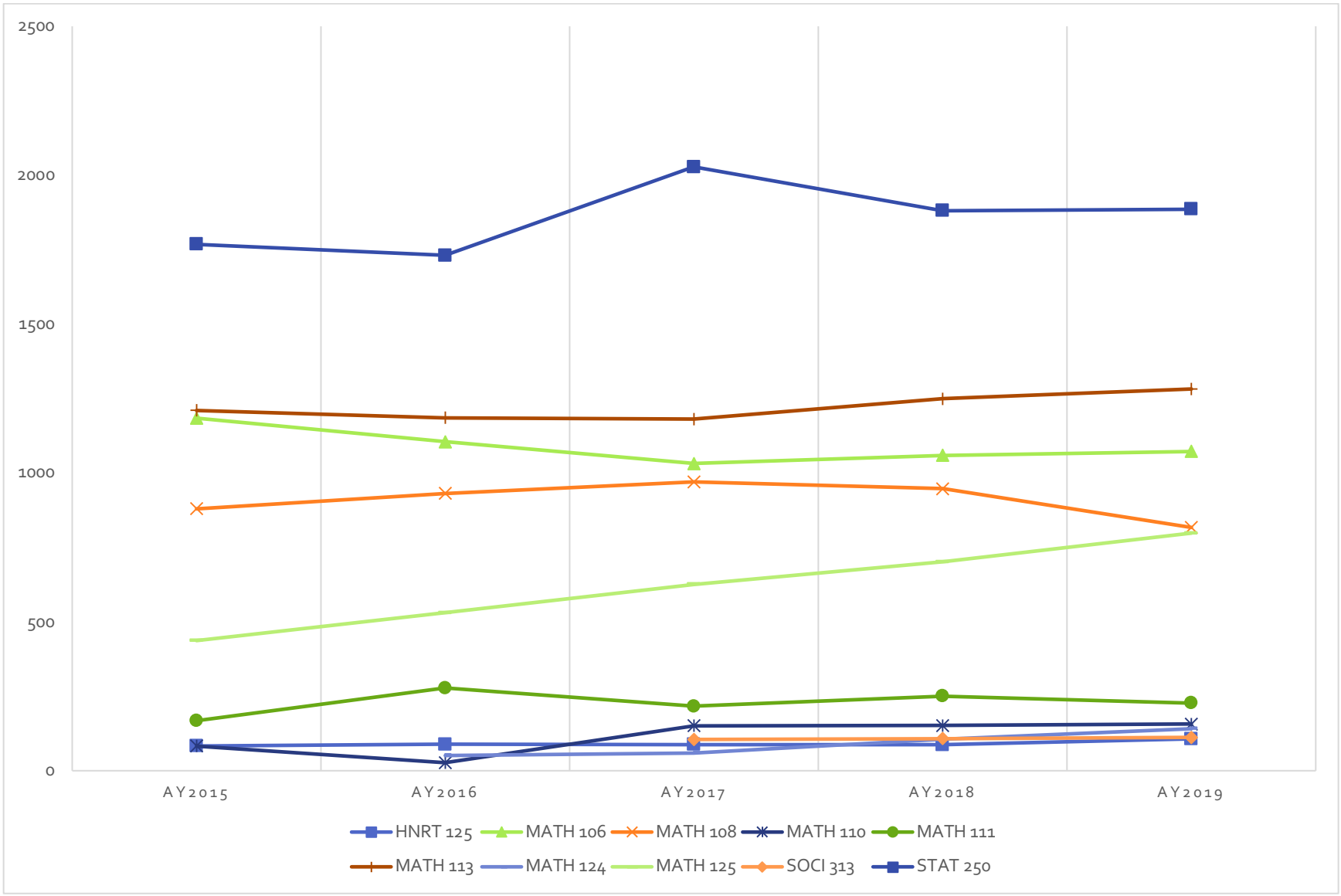


*Table 24. Mann-Whitney U Test: Comparison of Rubric Ratings, Lower-Division QR vs. Upper-Division In the Major*

| | Mean Rank (n) | | | | | |
|---|---|---|---|---|---|---|
| | **Lower** | **Upper** | **U** | **Z** | **p** | **Sig.** |
| **Interpretation** | 86.54 (113) | 116.74 (85) | 3337.500 | -3.974 | 0.000 | * |
| **Representation** | 86.80 (112) | 103.64 (74) | 3394.000 | -2.245 | 0.025 | * |
| **Calculation** | 99.53 (119) | 87.29 (70) | 3625.500 | -1.590 | 0.112 | |
| **Application/analysis** | 91.72 (113) | 114.91 (90) | 3923.500 | -2.999 | 0.003 | * |
| **Assumptions** | 36.00 (43) | 59.35 (54) | 602.000 | -4.348 | 0.000 | * |
| **Communication** | 66.21 (77) | 100.73 (92) | 2095.000 | -4.796 | 0.000 | * |

*Figure 53. Enrollment by Course and Gender, AY17-19*

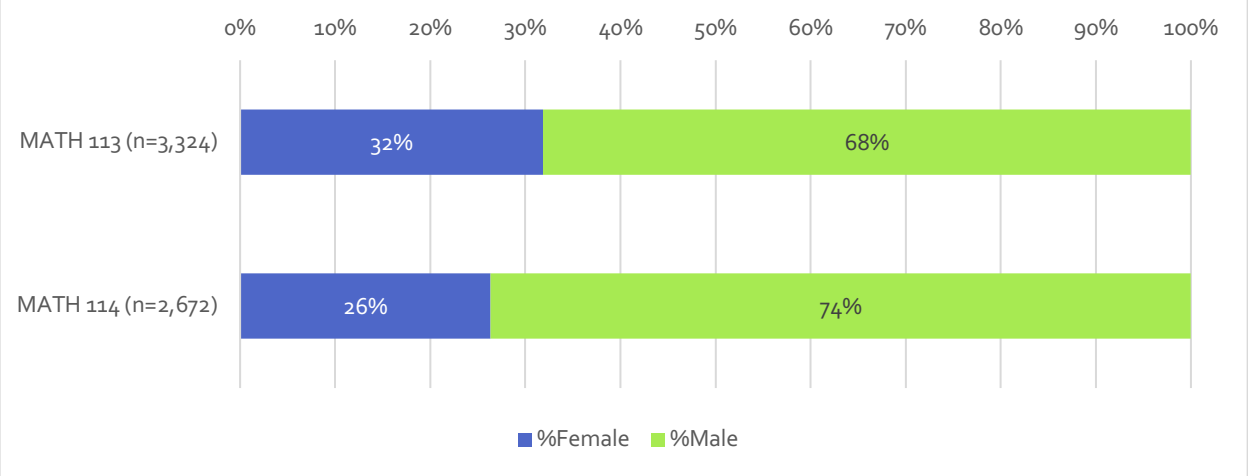
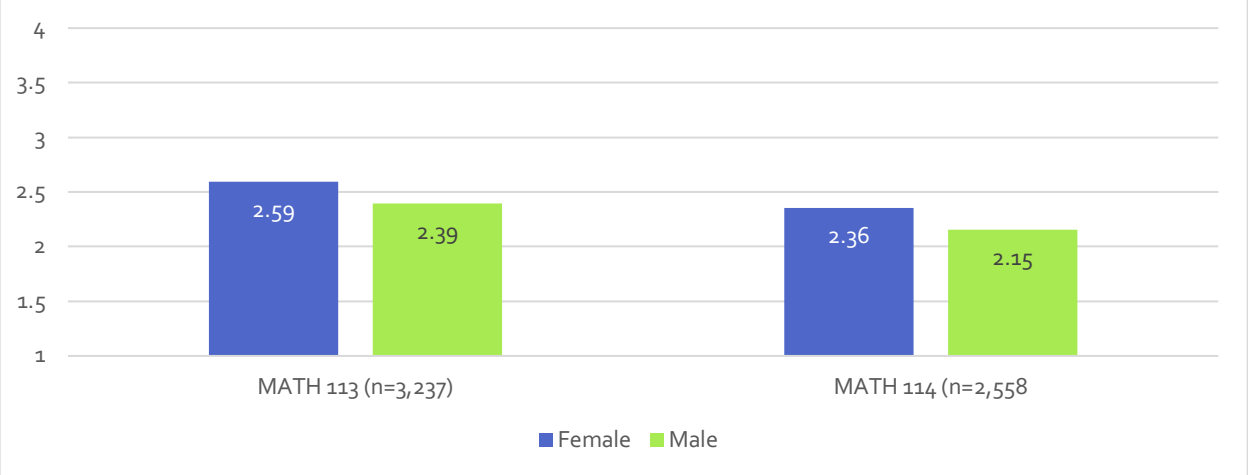



*Figure 54. Mean Grades by Course and Gender, AY17-19*




On a 4.0 scale; calculations do not include withdrawals

*Figure 55. MATH 113/114 Enrollment by Race, Compared to Fall 2019 Mason Undergraduate Enrollment*

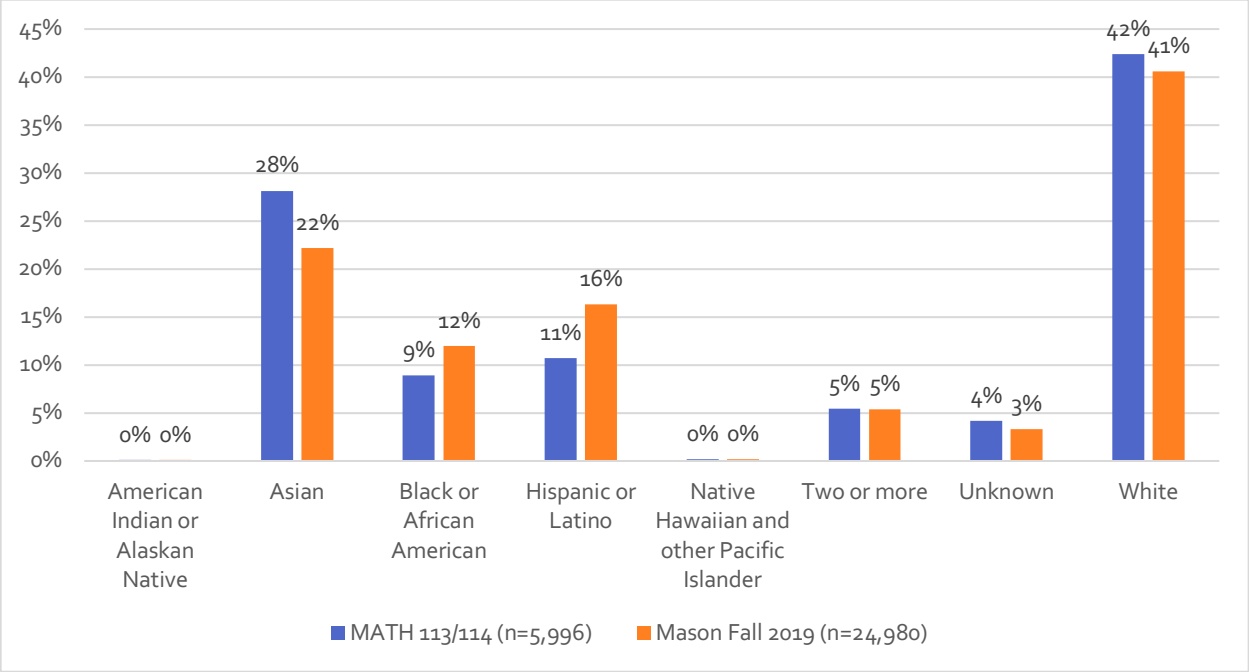
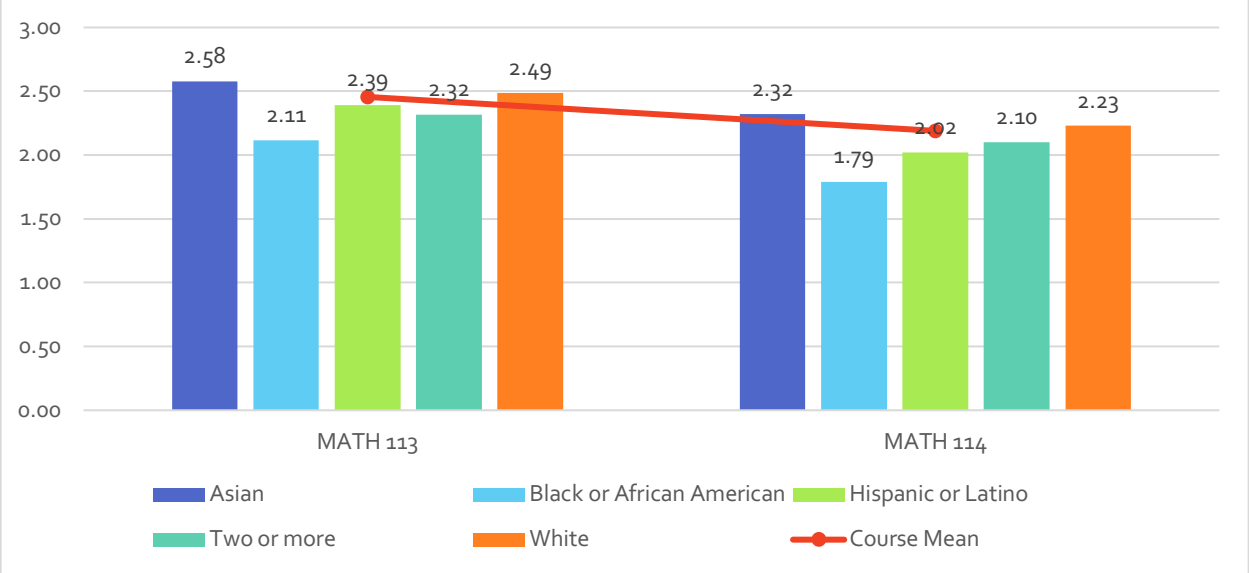



*Figure 56. Mean Grades in MATH 113/114 by Course and Race, AY17-19*



# Social and Behavioral Sciences

## Description and Learning Outcomes

Courses approved for the Social and Behavioral Sciences category must meet the following three outcomes.

1. **Contextual Factors.** Explain how individuals, groups or institutions are influenced by contextual factors.
2. **Social and Cultural Constructs.** Demonstrate awareness of changes in social and cultural constructs.
3. **Theories, Methods, Concepts.** Use appropriate methods and resources to apply social and behavioral science concepts, terminology, principles and theories in the analysis of significant human issues, past or present.

## Approved Courses and Enrollment

Students are required to pass one course approved for Social and Behavioral Sciences or transfer in an appropriate course. During the assessment period, 52 courses were approved to meet the Social and Behavioral Sciences requirement (see page 120).

Social and Behavioral Sciences courses enroll nearly 13,000 students each year with an average class size that ranges from eight students in Education courses to 128 in Criminology, Law, & Society courses (see Table 25). Course section sizes are relatively large overall, with the largest courses enrolling an average of more than 70 students per section: PSYC 100 (ave = 130); CRIM 100 (ave = 128); ECON 103 (ave = 101); ECON 104 (ave = 97); GOVT 103 (ave = 89); and GOVT 101 (ave =73). The Economics department teaches the most students, with ECON 103 and 104 as the highest enrolled courses. PSYC 100 has the next highest enrollment, followed by SOCI 101 AND BUS 100. Figure 61 shows enrollment trends over the past five years.

Students in the Honors College take HNRS 131: Contemporary Social Issues to fulfill their learning outcomes in this category. Although not formally a part of the Mason Core, HNRS 131 is also included in this assessment.

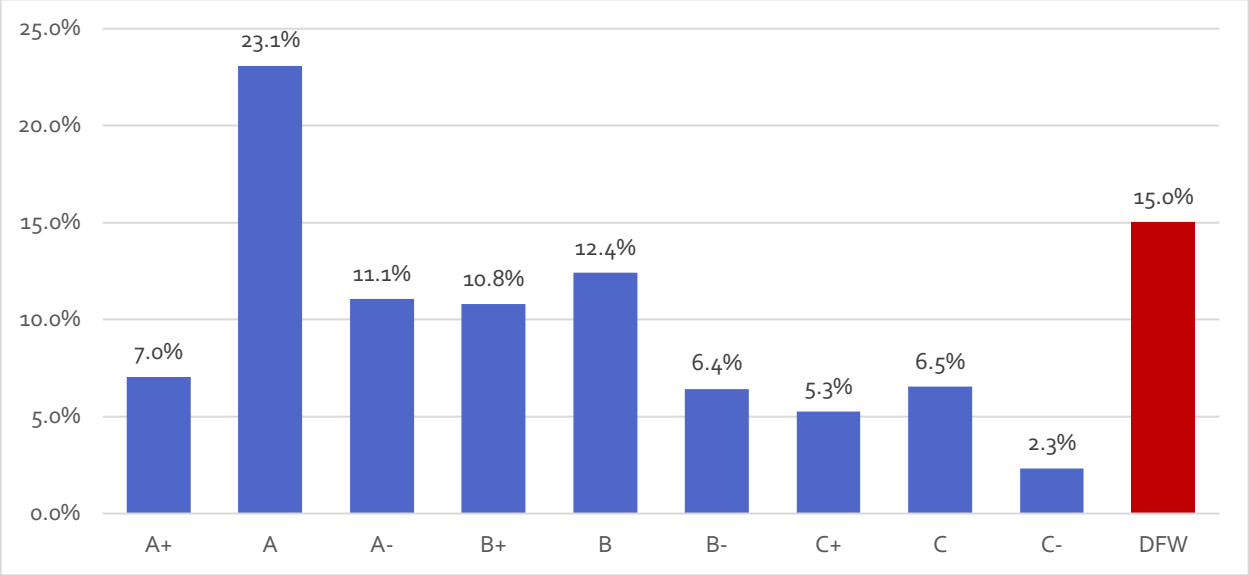
## Courses Included in Assessment

The assessment period included 126 sections of Mason Core Social and Behavioral Sciences courses taught in fall 2018 and eight sections of Honors 131. Of the 134 course sections included in the assessment period, 71% submitted materials.

## *Enrollment and Grades Distribution*

A total of 7,057 students enrolled in Social and Behavioral Sciences courses including HNRS 131 in the assessment period. Of these students, 82.6% passed their courses with a C or above (see Figure 57).

*Figure 57. Grades Distribution for Mason Core Social and Behavioral Sciences Courses, Fall 2018*




## Assessment Methods

Student written work samples were requested from all course sections taught in the assessment period. Faculty were asked to submit samples completed in the final third part of the semester and that allowed students to demonstrate their learning on one or more of the expected course learning outcomes. Samples were selected using randomized course enrollment lists to insure the best possible representative sample.

The **Mason Core Rubric for Evaluating Student Work in Social and Behavioral Sciences Courses** was used for this assessment. The rubric was developed by Mason faculty as a tool to assess individual student work on three learning tasks or outcomes. The rubric was modeled after the AAC&U VALUE rubrics and uses four performance descriptors: Benchmark, Emerging Milestone, Advanced Milestone, and Capstone, as well as an option for "no evidence." The performance descriptors are developmental, identifying student performance levels in a context of learning and growth. The rubric is intended to be used across all of the years of a student's college experience, and is not limited to a single course, assignment, or student class level.

Using a process modeled after the VALUE Institute reviewer calibration, faculty reviewers were trained to use the rubric to assess student work. Reviews were normed to produce consistent

ratings across reviewers. Reviewers met for an in-person, one-day training and review session and completed the reviews of student work by the end of the day. Reviewers were faculty members who have taught Mason Core Social and Behavioral Sciences. Reviewers earned a small stipend for their efforts. Each student work sample was assessed twice. Results were analyzed for interrater reliability; discrepant reviews were resolved using a third review.

## Learning Outcomes Assessment Results

Figures 58 and 59 display results from 558 ratings on the rubric. Figure 58 includes "no evidence" ratings; a rating of "no evidence" was used when the learning outcome could not be seen in the sample; this could mean that either the assignment did not require application of the outcome, or that the student did not demonstrate it. A "no evidence" rating provides important information in aggregate but is given no value for an individual sample.

*Figure 58. Assessment Results, Aggregated, including "No Evidence" Ratings*

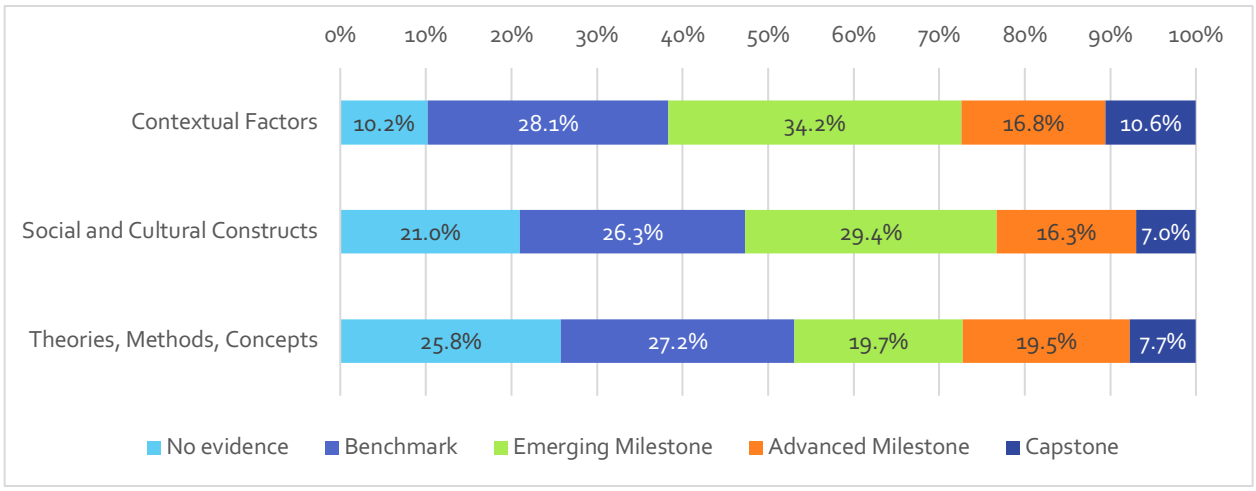
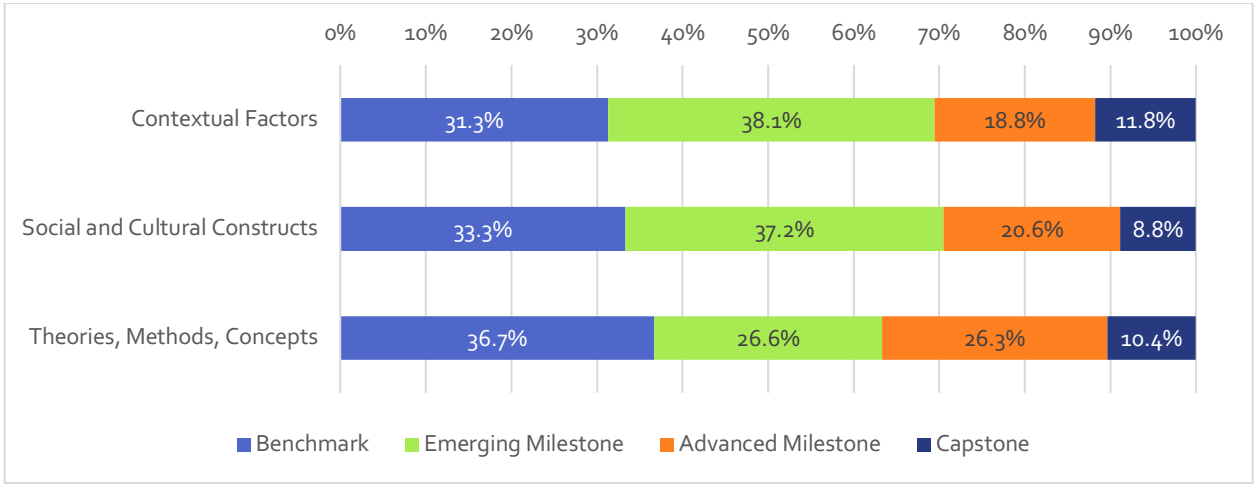



*Figure 59. Assessment Results, Aggregated, excluding "No Evidence" Ratings*



### *Highlights from Analysis of Results*

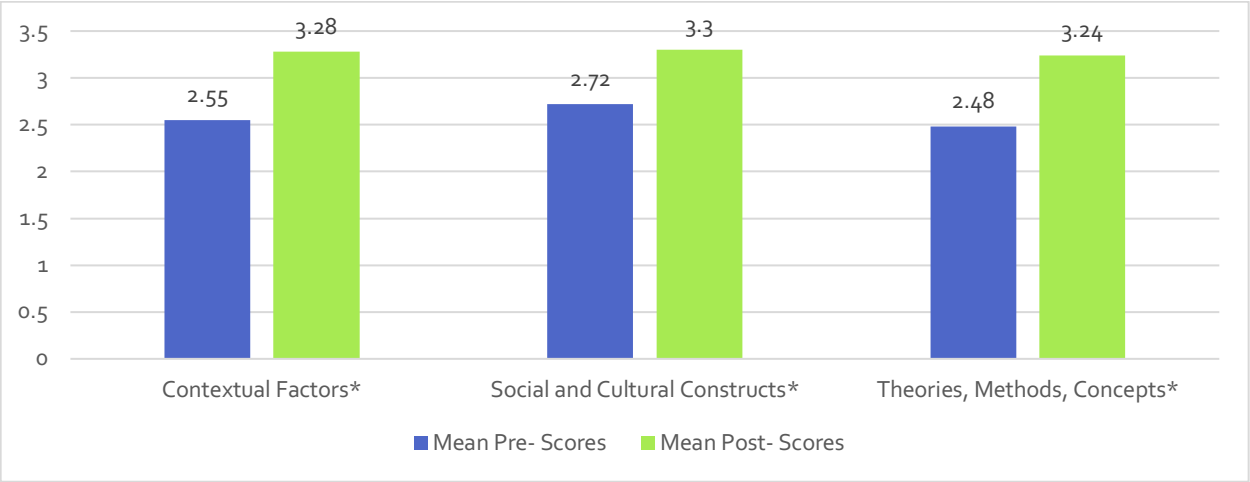
Data were analyzed to ascertain differences among courses in achieving the three learning outcomes. Comparison tests were conducted using nonparametric statistics because rubric data are ordinal; Independent-Samples Mann-Whitney *U*, ($p$ <.05) was used when analyzing differences between two groups, and Independent-Samples Kruskal–Wallis *H* test was used to analyze differences across three or more groups or courses. "No evidence" was treated as missing. Significant findings ($p$ <.05) are noted below.

- Work samples were least likely to show evidence of Outcome #3, **Theories, Methods, Concepts** (74.2% demonstrated this outcome).
- At least two-thirds of the samples were rated Benchmark or Emerging on all three outcomes.
- Samples were rated highest on **Theories, Methods, Concepts** when that outcome was in evidence.
- Samples from juniors and seniors were rated higher than first and second year students on **Contextual Factors** and **Social and Cultural Constructs**, regardless of whether they were taking an upper- or lower-division course.
- There were no differences between students who started at Mason as freshmen and transfer students.
- When comparing three courses for which reviewers rated the most samples (BUS 100, n=43; PSYC 211, n=20; PSYC 231, n=18), samples from PSYC 231 were rated significantly higher than the other courses on **Social and Cultural Constructs** and **Theories, Methods, and Concepts**.

### *Student Self-Assessment*

All students who were enrolled in a Mason Core Social and Behavioral Sciences course during the assessment period received an online self-assessment survey at the end of the semester. The retrospective pre-post self-assessment asked students to rate their knowledge and skills on four learning outcomes at the beginning of the semester (pre), and then again at the end of the semester (post). In total, 420 students completed both the pre and post items, resulting in a 6% response rate. A t-test pairwise comparison showed significant perceived learning gains on all four outcomes (see Figure 60).

*Figure 6o. Mean Scores on Student Learning Self-Assessment*




Mean scores, self-reported on a scale of 1-4, n=420, * $p < .05$

## How do the Results Meet Expectations?

Because this was the first time that Mason used this rubric to assess student work, these data provide baseline information. More than 76% of samples were from lower-division courses, which suggests that the majority of samples should be rated at the Benchmark and Emerging levels. The higher performance by juniors and seniors could be due to maturation or concepts learned in previous courses.

## How are Results Being Used to Improve Students' Educational Experience?

A series of open meetings (including an online option) were held in fall 2019 to share results. Faculty were encouraged to use the assessment rubric in their course and assignment design.

## Limitations of this Assessment

Overall, this assessment was well-designed for the student written work. However, the highest enrolled courses are so large that the course-based work is typically limited to multiple-choice exams; these exams were not appropriate for assessing student achievement on the rubric. Thus, this assessment was not a valid representation of student learning across the Social and Behavioral Sciences. Additionally, while the rubric was designed to align directly to the category's learning outcomes, it is recommended that the rubric delineate the complex outcomes that are grouped in the learning outcomes. For instance, **Theories, Methods, Concepts** are the stuff of entire disciplines. Thus, it is not clear what the assessment is capturing in this one outcome; are student proficient in understanding and applying theories, or can they discuss methods used in a research study? Reviewers were instructed to interpret this outcome liberally in their assessment. Should the rubric should be revised, a model could be the **Mason Core Rubric for Western Civilization/World History**.

## Assessment Rubric(s)

The **Mason Core Rubric for Evaluating Student Work in Social and Behavioral Sciences** was developed by a team of Mason Social and Behavioral Sciences faculty to evaluate student work for the Mason Core learning outcomes in Social and Behavioral Sciences. The rubric was modeled after the AAC&U VALUE rubrics, and was informed by the Measuring College Learning Project (Calder & Steffes, 2016) and the Connecticut State Colleges & Universities (CSCU) General Education Assessment Rubric for Social Phenomena (2012). The rubric was designed to evaluate student performance on three learning outcomes, with four increasingly sophisticated performance descriptors for each outcome. The rubric can be used with many types of written work. Most student work will not show evidence of all three outcomes; in this case, an additional category for "no evidence" should be made available.

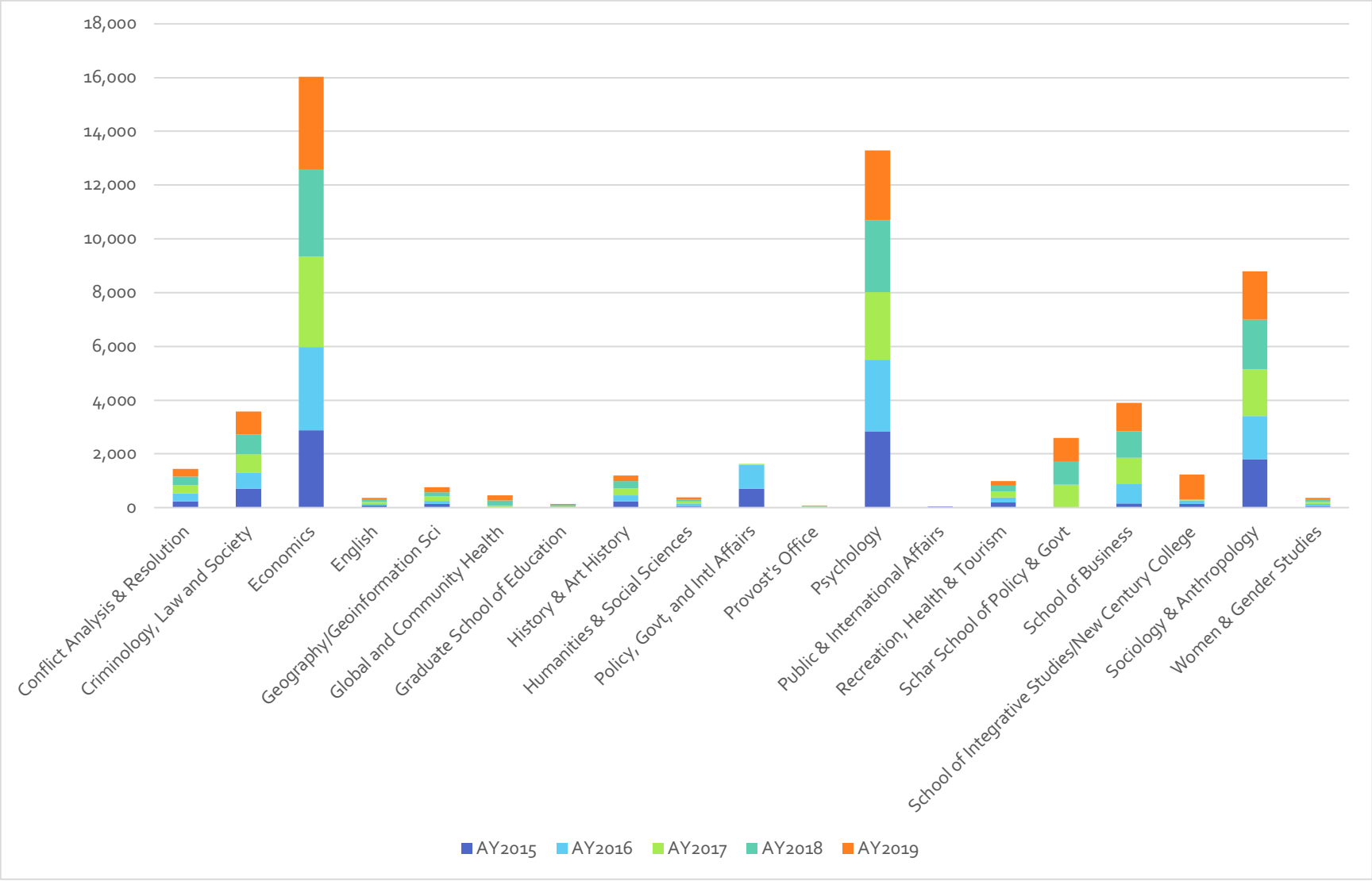
## Courses Approved for Mason Core Social and Behavioral Sciences in Fall 2018

AFAM 200 Introduction to African American Studies
ANTH 114 Introduction to Cultural Anthropology
ANTH 120 Unearthing the Past: Prehistory, Culture and Evolution
ANTH 135 Introduction to Biological Anthropology
ANTH 363 Humans, Disease, and Death
ANTH 372 Cultures of Disaster, Risk, and Hope
ANTH 396 Issues in Anthropology: Social Sciences
BUS 100 Business and Society
CONF 101 Conflict and Our World
CONS 410 Human Dimensions in Conservation
CRIM 100 Introduction to Criminal Justice
ECON 100 Economics for the Citizen
ECON 103 Contemporary Microeconomic Principles
ECON 104 Contemporary Macroeconomic Principles
ECON 105 Environmental Economics for the Citizen
ECON 367 Money, Markets, and Economic Policy
EDUC 203 Disability in American Culture
EDUC 372 Human Development, Learning, and Teaching
GCH 325 Stress and Well-Being
GGS 103 Human Geography
GOVT 101 Democratic Theory and Practice
GOVT 103 Introduction to American Government
GOVT 367 Money, Markets and Economic Policy
HEAL 230 Introduction to Health Behavior
HIST 121 Formation of the American Republic
HIST 122 Development of Modern America
INTS 300 Law and Justice
INTS 304 Social Movements and Community Activism
INTS 316 Introduction to Childhood Studies
INTS 317 Issues in Family Relationships
INTS 319 Contemporary Youth Studies
INTS 320 Construction of Differences: Race, Class, and Gender
INTS 321 Parent-Child Relations
INTS 331 The Nonprofit Sector
INTS 334 Environmental Justice
INTS 336 Poverty, Wealth and Inequality in the US
INTS 347 Gender Representation in Popular Culture
INTS 361 Neighborhood, Community, and Identity
INTS 362 Social Justice and Human Rights
INTS 371 Food Systems and Policy
INTS 436 Social Justice Education
INTS 437 Critical Race Studies
INTS 438 Representations of Race
LING 306 General Linguistics
PSYC 100 Basic Concepts in Psychology
PSYC 211 Developmental Psychology
PSYC 231 Social Psychology
SOCI 101 Introductory Sociology
SOCI 352 Social Problems and Solutions
SOCI 355 Social Inequality
TOUR 311 Women and Tourism
WMST 200 Introduction to Women and Gender Studies

*Table 25. Enrollment in Mason Core Social and Behavioral Sciences Courses by Subject, AY2015-19*

| | AY2015 | | AY2016 | | AY2017 | | AY2018 | | AY2019 | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Subject** | **#Sections** | **Enroll** | **#Sections** | **Enroll** | **#Sections** | **Enroll** | **#Sections** | **Enroll** | **#Sections** | **Enroll** |
| **Conflict Analysis & Resolution** | 8 | 226 | 12 | 316 | 13 | 298 | 12 | 312 | 11 | 296 |
| **Criminology, Law and Society** | 6 | 696 | 5 | 602 | 5 | 699 | 5 | 724 | 7 | 851 |
| **Economics** | 30 | 2,882 | 32 | 3,089 | 36 | 3,366 | 34 | 3,229 | 42 | 3,468 |
| **English** | 2 | 74 | 2 | 69 | 2 | 75 | 2 | 69 | 2 | 76 |
| **Geography/Geoinformation Sci** | 5 | 127 | 4 | 129 | 4 | 173 | 4 | 136 | 4 | 204 |
| **Global and Community Health** | | | | | 2 | 79 | 5 | 189 | 5 | 188 |
| **Graduate School of Education** | 3 | 11 | 3 | 6 | 4 | 32 | 3 | 41 | 4 | 41 |
| **History & Art History** | 9 | 234 | 8 | 227 | 8 | 260 | 9 | 259 | 10 | 221 |
| **Humanities & Social Sciences** | 2 | 69 | 2 | 79 | 2 | 79 | 2 | 78 | 2 | 71 |
| **Policy, Govt, and Intl Affairs** | 9 | 711 | 12 | 889 | 2 | 35 | | | | |
| **Provost's Office** | 1 | 14 | 1 | 17 | 2 | 17 | 2 | 15 | 2 | 19 |
| **Psychology** | 39 | 2,832 | 37 | 2,672 | 38 | 2,518 | 37 | 2,673 | 45 | 2,597 |
| **Public & International Affairs** | 2 | 33 | | | | | | | | |
| **Recreation, Health & Tourism** | 8 | 192 | 10 | 181 | 15 | 243 | 13 | 197 | 12 | 175 |
| **Schar School of Policy & Govt** | | | | | 9 | 861 | 11 | 849 | 11 | 878 |
| **School of Business** | 7 | 154 | 29 | 726 | 36 | 973 | 39 | 990 | 43 | 1,045 |
| **School of Integrative Studies/ New Century College** | 6 | 139 | 6 | 122 | 1 | 17 | 1 | 25 | 36 | 920 |
| **Sociology & Anthropology** | 35 | 1,794 | 35 | 1,620 | 40 | 1,723 | 42 | 1,855 | 39 | 1,796 |
| **Women & Gender Studies** | 2 | 66 | 3 | 75 | 2 | 64 | 2 | 74 | 2 | 75 |
| **TOTAL** | **174** | **10,254** | **201** | **10,819** | **221** | **11,512** | **223** | **11,715** | **277** | **12,921** |

*Figure 61. Five-Year Enrollment Trends in Mason Core Social and Behavioral Sciences Courses, AY2015-19*



# Western Civilization and World History

## Description and Learning Outcomes

Courses approved for the Western Civilization and World History category must meet at least three of the five following outcomes.

1. Demonstrate familiarity with the major chronology of Western civilization or world history.
2. Demonstrate the ability to narrate and explain long-term changes and continuities in Western civilization or world history.
3. Identify, evaluate, and appropriately cite online and print resources.
4. Develop multiple historical literacies by analyzing primary sources of various kinds (texts, images, music) and using these sources as evidence to support interpretation of historical events.
5. Communicate effectively— through speech, writing, and use of digital media—their understanding of patterns, process, and themes in the history of Western civilization or the world.

## Approved Courses and Enrollment

Students are required to pass one of the courses approved for Western Civilization and World History or transfer in an appropriate course. During the assessment period, two courses were approved to meet the Western Civilization and World History requirement:

HIST 100 History of Western Civilization
HIST 125 Introduction to World History

Western Civilization and World History courses enroll over 4,000 students each year with an average class size of 50 (see Table 26). Figure 68 shows enrollment trends over the past five years.

Students in the Honors College take HNRS 240: Reading the Past to fulfill their learning outcomes in this category. Although not formally a part of the Mason Core, HNRS 240 is also included in this assessment.

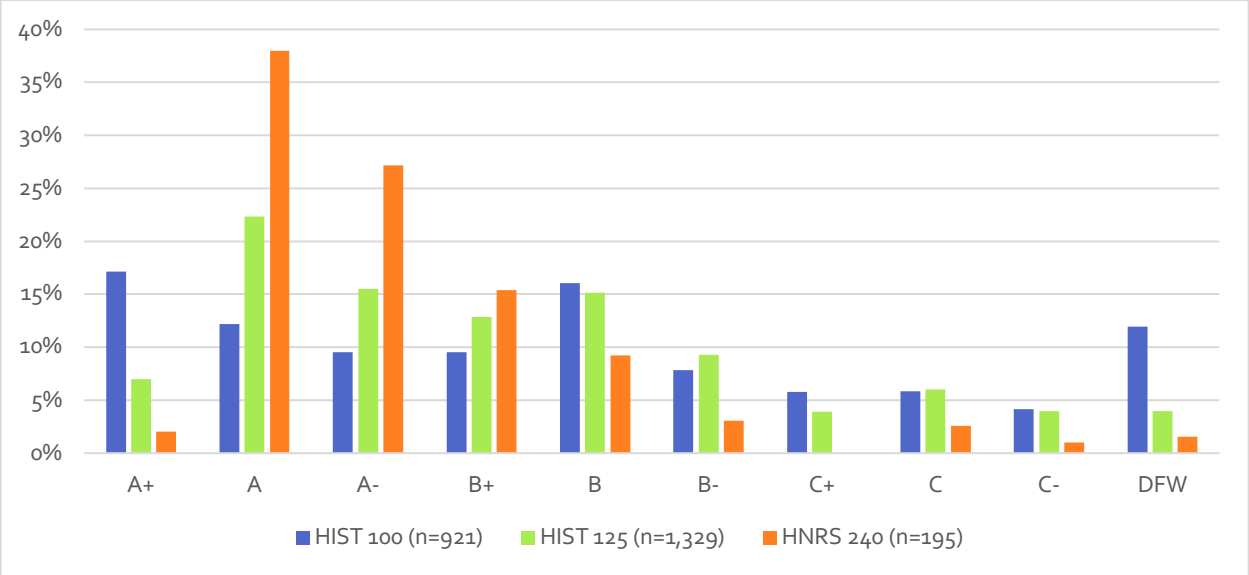
## Courses Included in Assessment

The assessment period included 38 sections of HIST 100 and 125 taught in fall 2017, three sections of HIST 100 and 125 at Mason Korea in fall 2018, and nine sections of HNRS 240 in fall 2018. All sections offered in the assessment period were expected to participate. Of the 50 course sections included in the assessment period, 84% submitted materials.

### *Enrollment and Grades Distribution*

A total of 2,127 students enrolled in HIST 100 and 125, and 195 enrolled in HNRS 240 in the assessment period. Of these students, 88% passed HIST 100, 96% passed HIST 125, and 98% passed HNRS 240 with a C- or above (see Figure 62).

*Figure 62. Grades Distribution for HIST 100 and 125 in fall 2017, and HNRS 240 in fall 2018*




## Assessment Methods

Student written work samples were requested from all course sections taught in the assessment period. Faculty were asked to submit samples completed in the final third part of the semester and allowed students to demonstrate their learning on one or more of the expected course learning outcomes. Samples were selected using randomized course enrollment lists to insure the best possible representative sample.

The **Mason Core Rubric for Evaluating Student Work in Western Civilization/World History** was used for this assessment. The rubric was developed by Mason faculty as a tool to assess individual student work on six learning tasks or outcomes. The rubric uses four performance descriptors: Benchmark, Emerging Milestone, Advanced Milestone, and Capstone, as well as an option for "no evidence." The performance descriptors are developmental, identifying

student performance levels in a context of learning and growth. The rubric is intended to be used across all of the years of a student's college experience, and is not limited to a single course, assignment, or student class level.

Using a process modeled after the VALUE Institute reviewer calibration, faculty reviewers were trained to use the rubric to assess student work. Reviews were normed to produce consistent ratings across reviewers. Reviewers met for an in-person, one-day training and review session and completed the reviews of student work by the end of the day. Reviewers were faculty members who have taught Western Civilization/World History courses and related Mason Core courses. Reviewers earned a small stipend for their efforts.

Each student work sample was assessed twice. Results were analyzed for interrater reliability; discrepant reviews were resolved using a third review.

## Learning Outcomes Assessment Results

Figures 63-66 display results from 117 randomly selected student work samples rated on the rubric. The six outcomes were grouped into two conceptual categories with three learning outcomes each:

1. Understanding Historical Concepts (Figures 63-64)
    a. Demonstrate knowledge of major patterns, processes, themes and events
    b. Situate events, concepts, and/or sources within broad historical context(s)
    c. Demonstrate knowledge of historical causation or chronological reasoning
2. Thinking Like a Historian (Figures 65-66)
    a. Identify, evaluate, and cite primary and secondary historical sources to present an interpretation
    b. Evaluate and analyze various interpretations of the past to describe historical events
    c. Effectively construct and communicate a defendable historical account

Figures 63 and 64 include "no evidence" ratings; a rating of "no evidence" was used when the learning outcome could not be seen in the sample; this could mean that either the assignment did not require application of the outcome, or that the student did not demonstrate it. A "no evidence" rating provides important information in aggregate but is given no value for an individual sample. Note that most of the samples showed evidence of the learning outcomes; samples were least likely to show evidence of learning outcome #4, "identify, evaluate, and cite primary and secondary historical sources to present an interpretation." It was surmised that this may reflect the fact that in-class essay exams represented a substantive portion of the work samples, and this outcome would not be expected to be performed on exams.

*Figure 63. Assessment Results, Aggregated, including "No Evidence" Ratings: Outcomes #1-3, "Understanding Historical Concepts"*

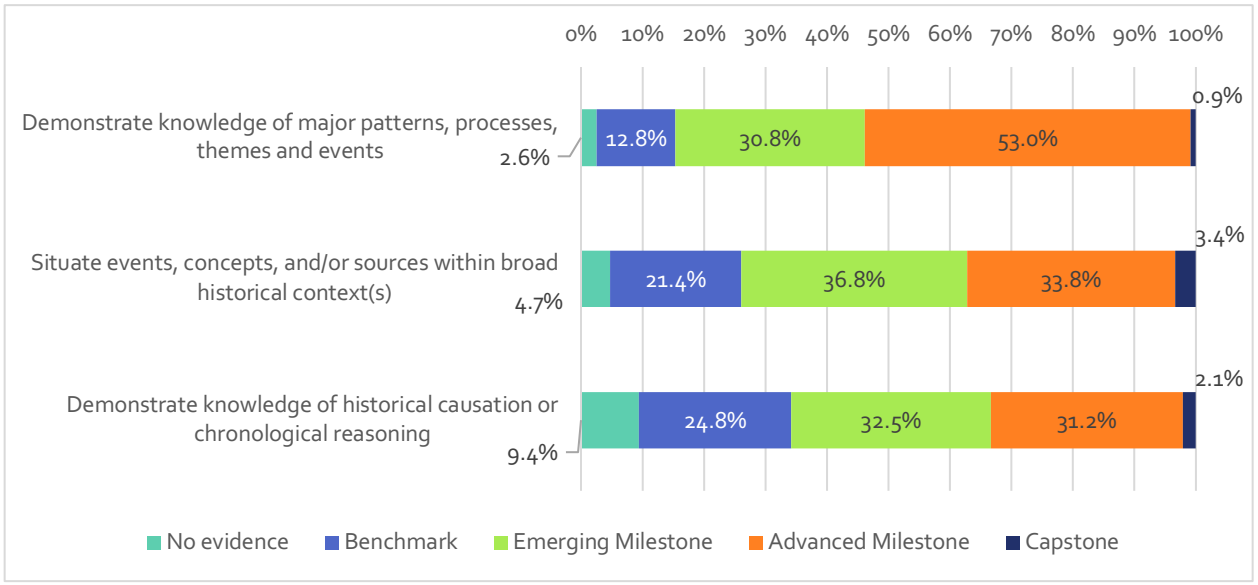



*Figure 64. Assessment Results, Aggregated, including "No Evidence" Ratings: Outcomes #4-6, "Thinking Like a Historian"*

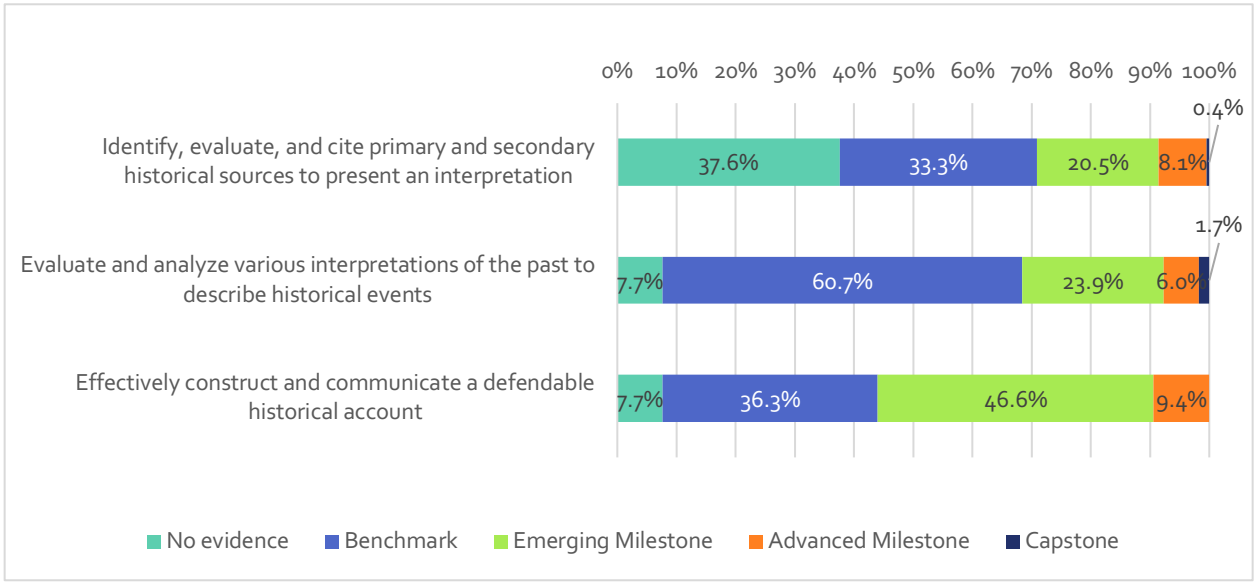


*Figure 65. Assessment Results, Aggregated, excluding "No Evidence" Ratings: Outcomes #1-3, "Understanding Historical Concepts"*

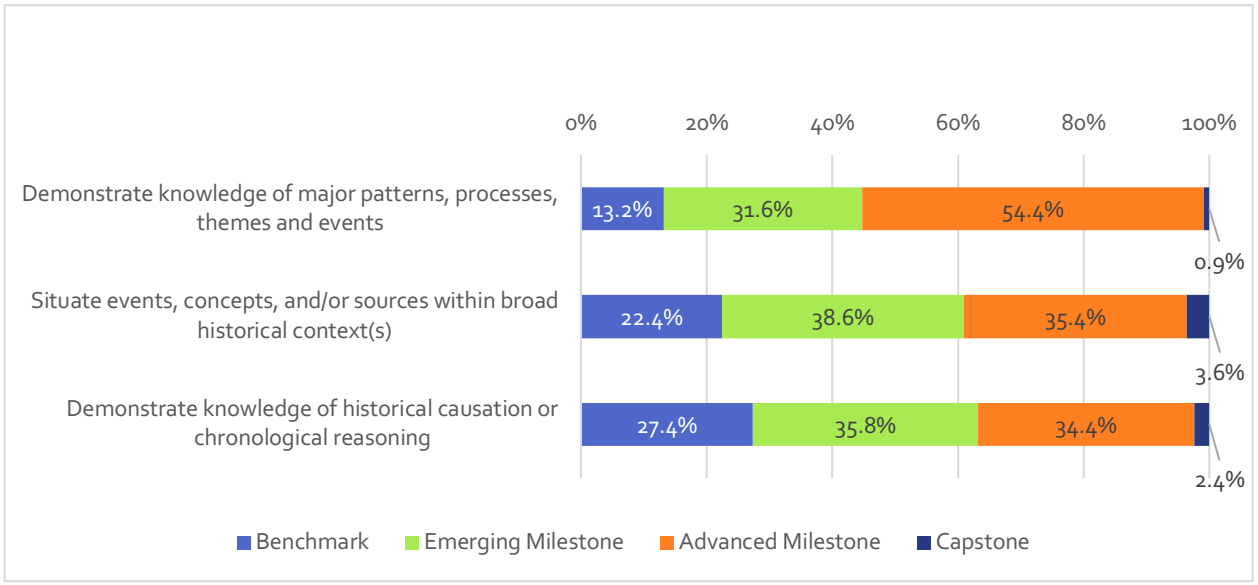
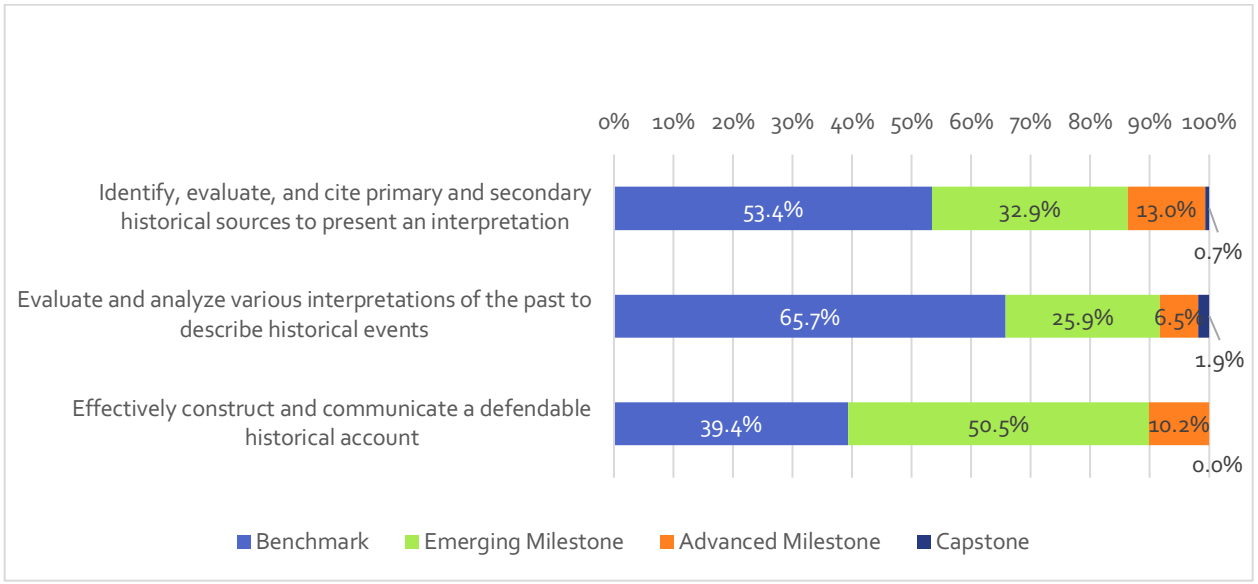



*Figure 66. Assessment Results, Aggregated, excluding "No Evidence" Ratings: Outcomes #4-6, "Thinking Like a Historian"*




## *Highlights from Analysis of Results*

Data were analyzed to ascertain differences among courses in achieving the six learning outcomes. Comparison tests were conducted using nonparametric statistics because rubric data are ordinal; Independent-Samples Mann-Whitney *U*, ($p$ <.05) was used when analyzing

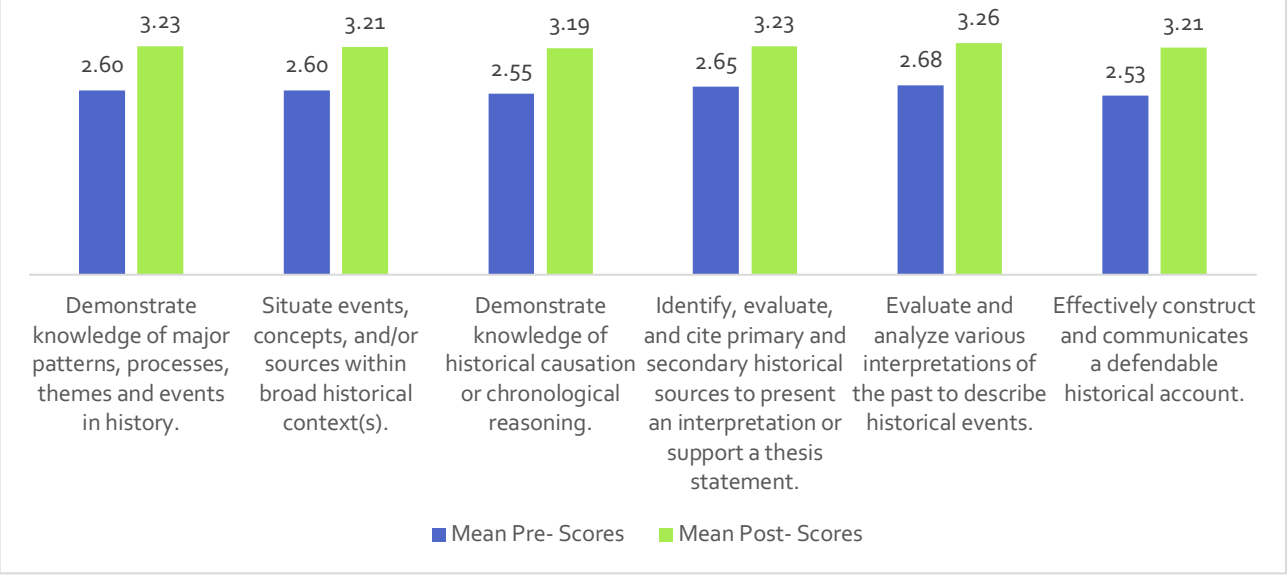
differences between two groups, and Independent-Samples Kruskal–Wallis *H* test was used to analyze differences across the three courses. Significant findings ($p$ <.05) are noted below.

- A comparison between HIST 100 and HIST 125 found that HIST 125 samples were rated higher than HIST 100 on the first three outcomes—**Understanding Historical Concepts**. There were no differences on the second set of outcomes—**Thinking Like a Historian**.
- HNRS 240 samples were rated significantly higher ($p$ <.05) than HIST 100 (but not HIST 125) on two outcomes only: **Demonstrate knowledge of major patterns, processes, themes and events**; and **Demonstrate knowledge of historical causation or chronological reasoning.**

### *Student Self-Assessment*

All students who were enrolled in a Mason Core Western Civilization or World History course during the assessment period received an online self-assessment survey at the end of the semester. The retrospective pre-post self-assessment asked students to rate their knowledge and skills on six learning outcomes at the beginning of the semester (pre), and then again at the end of the semester (post). In total, 238 students completed both the pre and post items, resulting in a 10% response rate. A t-test pairwise comparison showed significant perceived learning gains on all six outcomes (see Figure 67).

*Figure 67. Mean Scores on Student Learning Self-Assessment, Western Civilization/World History*




Mean scores, self-reported on a scale of 1-4, n=238, $p$ < .05

## How do the Results Meet Expectations?

Because this was the first time that Mason used this rubric to assess student work, these data provide baseline information. In post-assessment conversations, History faculty were pleased with the results and considered student performance to be appropriate for 100-level courses.

## How are Results Being Used to Improve Students' Educational Experience?

A series of open meetings (including an online option) were held in February 2018 to share results, as well as a special discussion at an all-faculty meeting in the History department. Some faculty expressed intention to incorporate the rubric into their courses for more frequent assessment of these outcomes. There has been some interest in comparing these results to senior-level writing in the discipline. Additionally, History faculty have expanded their definition of communication in the discipline and have been reconsidering how they teach and assess various forms of scholarly communication; this may also affect the introductory curriculum.

In AY2017, the History department responded to student demand for more sections of HIST 125: Introduction to World History and adjusted course offerings beginning in AY2018 (see Figure 1). In line with this enrollment shift, the department has since initiated a series of brown bag meetings specifically devoted to HIST 125, in the hope of advancing their discussion of these issues. They have also requested authorization to hire a term faculty member to teach HIST 125. If granted, they plan to request that the faculty member be granted a course reduction to function as a "course coordinator" for HIST 125, with the goal of having a point person who will be tasked with continuing to push these conversations and help mobilize faculty efforts towards improving students' learning experiences in the course. As a high enrollment set of courses, HIST 100/125 is the only program of its kind in the Mason Core (e.g., ENGH 101, COMM 101, etc.) that does not have a compensated course coordinator to coordinate the efforts of the many faculty who teach the course.

## Limitations of this Assessment

Overall, this assessment was well-designed for the student work in these courses. Faculty expressed some concern that written essay exams may not have performed as highly as research papers, though the data did not bear out their concerns. The sample size was insufficient to perform a robust analysis of results based on student demographics.

## Assessment Rubric(s)

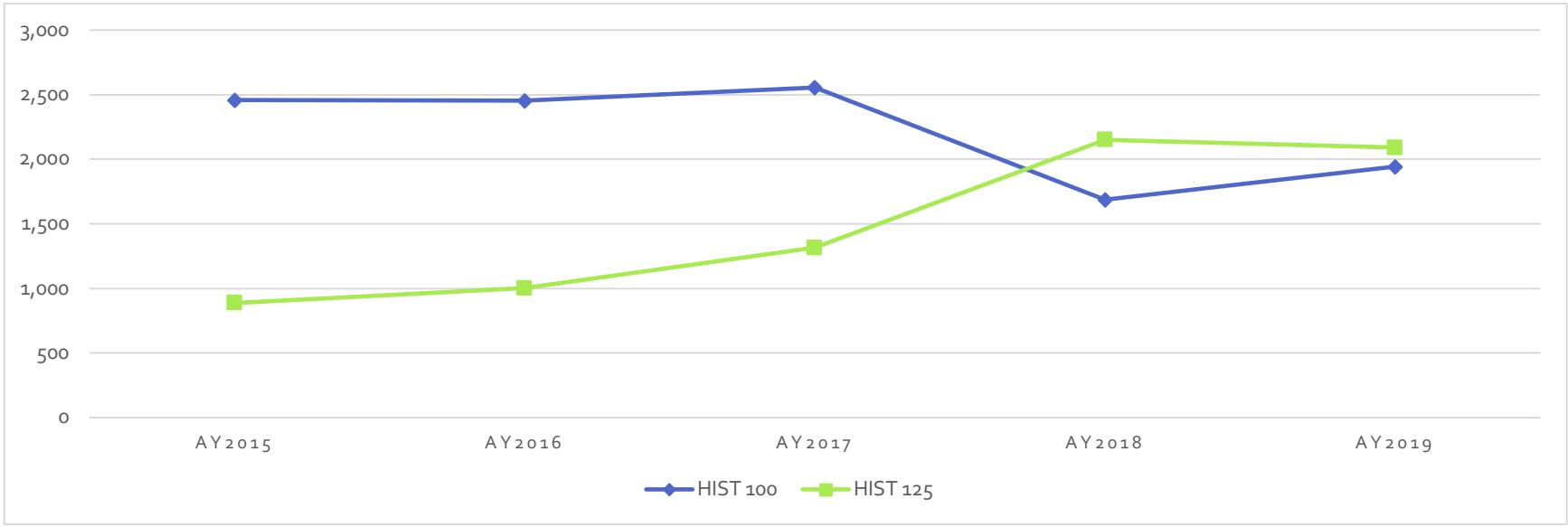
The **Mason Core Rubric for Evaluating Student Work in Western Civilization/World History** was developed by a team of Mason History faculty to evaluate student work for the Mason Core learning outcomes in Western Civilization and World History. The rubric was modeled after the AAC&U VALUE rubrics and was informed by the Measuring College Learning Project

(Calder & Steffes, 2016). The rubric is designed to evaluate student performance on six learning outcomes, with four increasingly sophisticated performance descriptors for each outcome. The rubric can be used with many types of written work. Most student work will not show evidence of all six outcomes; in this case, an additional category for "no evidence" should be made available.

*Table 26. Enrollment in Mason Core Western Civilization/World History Courses, AY2017-19*

| | AY2017 | | | AY2018 | | | AY2019 | | |
|---|---|---|---|---|---|---|---|---|---|
| | #Course Sections | Enrollment | Ave Class Size | #Course Sections | Enrollment | Ave Class Size | #Course Sections | Enrollment | Ave Class Size |
| **HIST 100** | 43 | 2,555 | 59 | 27 | 1,687 | 62 | 36 | 1,941 | 54 |
| **HIST 125** | 30 | 1,316 | 44 | 49 | 2,150 | 44 | 45 | 2,090 | 46 |
| **TOTAL** | **73** | **3,871** | **52** | **76** | **3,837** | **53** | **81** | **4,031** | **50** |

*Figure 68. Five-Year Enrollment Trends in Western Civilization/World History Courses, AY2015-19*



# Written Communication

## Description and Learning Outcomes

The Composition program at George Mason University serves over 9,000 students a year on five campuses via five courses: English 100, English 121, English 122, English 101, and English 302. In all five courses, students are encouraged to see writing as a social, imaginative, inquiry-based recursive action. Writers create texts in a range of genres that attend to particular rhetorical and academic contexts and that meet the expectations of particular audiences.

ENGH 101 introduces students to the recursive, iterative nature of writing by developing reading, writing, and research strategies for a range of audiences, genres, and purposes.

In ENGH 100, a 4-hour credit course, multilingual students have the opportunity to enhance their English language proficiency while developing reading, writing, and research strategies for a range of rhetorical contexts. There are two versions of ENGH 100: one offered to direct admit students who self-select into the course and the other for international students in INTO Mason's accelerated pathway program.

ENGH 302, intended for students who have at least 60 completed credit hours, prepares students to do advanced rhetorical analysis, research, and writing oriented toward investigating, engaging with, and responding to meaningful disciplinary questions in a variety of contexts within and beyond the university walls.

In addition to these course offerings, the Composition program partners with INTO Mason to offer writing instruction to undergraduate and graduate international students participating in the Pathways program. The ENGH 121/122 courses offer a two-semester approach for undergraduate international students working on developing and refining academic writing skills based on current composition and rhetoric and linguistics scholarship. ENGH 121-122 and ENGH 100 offered through INTO Mason are co-taught between a Composition specialist from the English department and an EAP specialist from INTO Mason. The co-instructors collaborate on curriculum design, lesson planning, and student feedback.

## Student Learning Outcomes

### *Written Communication – Lower Division Composition*

ENGH 100/101/122, as a lower division of written communication, focus on writing in ways to help students communicate more fluently, express ideas more convincingly, and think more critically. Following are the learning outcomes for the lower division written communication[10].

[10] For more detail, please see https://composition.gmu.edu/first-year-composition

1. Students are able to analyze and respond to a range of rhetorical situations with increased awareness of the purposes, audiences, and contexts of writing. They are able to identify appropriate rhetorical strategies and apply them in their own writing.
2. Students develop strategies for anticipating and using audience response as they engage in and reflect upon a recursive writing process that includes exploration, inquiry, and invention, as well as drafting, organizing, revising, peer-reviewing, and editing.
3. Students gain emerging college-level proficiency in critically reading and writing nonfiction genres to develop analysis, reflection, exposition, argumentation, and research skills.
4. Students are able to use research strategies for topic exploration and refining research questions; locate, select, evaluate, synthesize, and document sources; and incorporate outside facts, perspectives, and ideas in their writing to complicate and extend their own ideas. They are able to employ appropriate technologies and resources to support their reading, thinking, researching, and writing.
5. Students develop knowledge of linguistic structures and writing conventions through critical reading and practice (writing and revision). They understand why writing conventions vary based on genre and audience and apply this knowledge by composing different types of texts.

### *Written Communication – Advanced Composition*

ENGH 302, Advanced Composition, prepares students to do advanced level analysis and writing specifically within their major and possible future workplaces. Following are the overall learning outcomes for the upper division written communication[11].

1. Students will be able to analyze rhetorical situations–audience, purpose, and context–in order to recognize the expectations of readers and understand the main purposes of composing across multiple contexts relevant to their fields of study.
2. Students will understand the conventions of academic and non-academic genres, to include usage, specialized vocabulary, format, and attribution/citation systems.
3. Students will be able to apply critical reading strategies that are appropriate to advanced academic and non-academic texts of relevance to their fields of study.
4. Students will identify and synthesize multiple perspectives in articulating and refining a research question relevant to their fields of study.
5. Students will engage in a recursive process of inventing, investigating, shaping, drafting, revising, and editing to produce a range of academic and non-academic texts of relevance to their fields of study.

[11] https://composition.gmu.edu/advanced-composition/engh-302

In addition, ENGH 302 focuses on the following learning outcomes aligned with the OSCAR undergraduate research initiative:

- CORE: Articulate and refine a question, problem, or challenge
- ETHICAL: Identify relevant ethical issues and follow ethical principles
- DISCOVERY: Distinguish between personal beliefs and evidence
- METHOD: Gather and evaluate evidence appropriate to the inquiry
- METHOD: Appropriately analyze scholarly evidence
- CONTEXT: Explain how knowledge is situated and shared in relevant scholarly contexts

## Approved Courses and Enrollment

All students are required to complete a first-year composition course (ENGH 100, 101, or 122) and an Advanced Composition course (ENGH 302), or equivalent competency (e.g. AP score or written waiver exam). Approximately 60% of students who take ENGH 302 are transfer students, most of whom have completed their lower-division Written Communication requirement at another institution.

Students in the Honors College take HNRS 110: Principles of Research and Inquiry or HNRS 302 (for transfer students) to fulfill their learning outcomes in this category. Although not formally a part of the Mason Core, HNRS 110 and 302 are also included in this assessment.

Lower-division English Composition courses enroll almost 3,000 students each year with an average class size of 15 for ENGH 100 and 18 for ENGH 101 (see Table 27). ENGH 302 enrolls an average of 6,300 students each year with an average class size of 20. HNRS 110 is taught in fall semester of each year, enrolling nearly 500 students each fall. Figure 82 shows enrollment trends over the past five years.

## Courses Included in Assessment

This report covers assessment activities completed in AY 18 and AY19. Student work samples were collected from lower division English composition courses in Fall 2018 and Spring 2019, concluding with a review session in May 2019. The assessment period included 26 sections of ENGH 100, 137 sections of ENGH 101, and four sections of ENGH 122 courses. Work samples were collected from eleven Mason Korea campus sections. All sections offered in the assessment period were expected to participate. Of the 167 course sections included in the assessment period, 83% submitted materials.

For assessment of advanced composition learning outcomes, student work samples were collected from ENGH 302 in fall 2017, ENGH 302 from Mason Korea in fall 2018, and from HNRS 110 and 302 in fall 2018. Sections were randomly selected to participate.

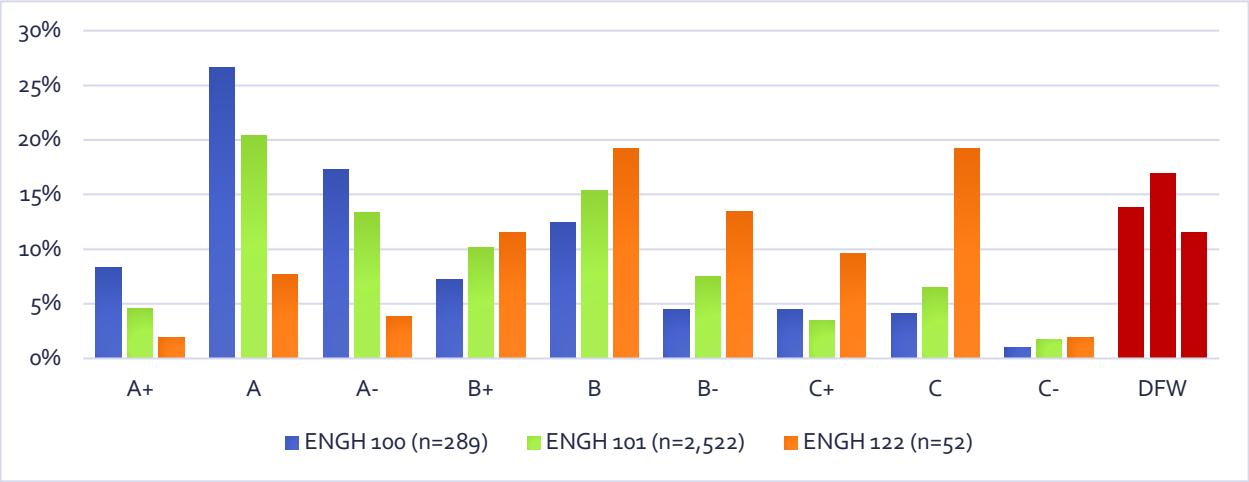
## *Enrollment and Grades Distribution*

### Lower Division Composition

A total of 2,863 students enrolled in ENGH 100, 101, and 122 courses in the assessment period. Of these students, 91% entered Mason as freshmen, 5.3% were transfer students, and 3.4% were INTO Mason students. Of the 2,863 total students, 82% passed their courses with a C or above (see Figure 69). ENGH 101 had the highest DFW rate, at 17% for AY19.

There were differences in final grades within and among the courses. ENGH 100 had the highest average grades (*M* = 3.06), ENGH 101 the second highest (*M* = 2.83), and ENGH 122 the lowest (*M* = 2.54); the differences were significant (p<.05). For all three courses, students identified as female performed significantly better than students identified as male. There were no differences by race or ethnicity in any of the three courses.

*Figure 69. Grades Distribution for Mason Core Lower Division Composition Courses, AY2019*

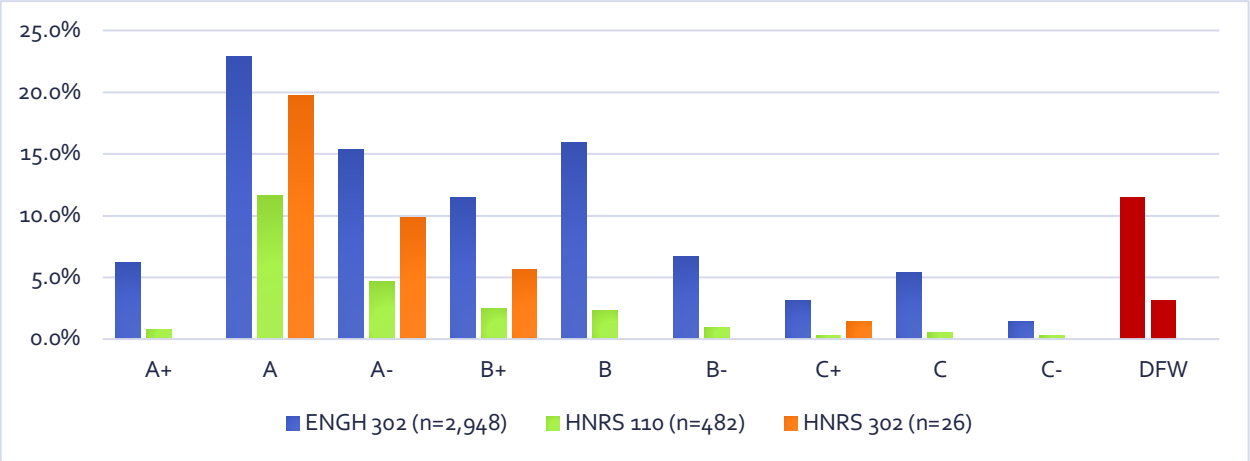



### Advanced Composition

A total of 3,456 students enrolled in ENGH 302, HNRS 110/302 courses in the assessment period. Of these students, 47% entered Mason as freshmen and 53% were transfer students. Of the 3,456 total students, 88% passed their courses with a C or above (see Figure 70).

There are differences in final grades within and among the courses. For all three courses, students identified as female (*M* = 3.26, *SD* = 1.01) earned significantly better grades on average than students identified as male (*M* = 2.98, *SD* = 1.15). Students who entered Mason as freshmen (*M* = 3.11, *SD* = 1.12) had higher grades on average in ENGH 302 than students who entered as transfer students (*M* = 3.01, *SD* = 1.12). There were no differences by race or ethnicity in any of the three courses.

*Figure 70. Grades Distribution for Mason Core Advanced Composition Courses, ENGH 302 fall 2017; HNRS 110, HNRS 302, ENGH 302K fall 2018*




## Assessment Methods and Results: Written Communication – Lower Division Composition

The assessment was led by the Composition Director and leadership team, in collaboration with the Mason Core assessment director. Student written work samples were requested from all course sections of ENGH 100 and 101 taught in the assessment period (fall 2018 and spring 2019). ENGH 122 is taught primarily in spring semesters, so samples were drawn in spring 2019. Faculty in ENGH 101 were asked to submit samples of an annotated bibliography and final researched essay students submitted at the end of semester. Faculty in ENGH 100 and ENGH 122 submitted a research plan that included a synthesis matrix to show the sources and connections among sources that students were making as well as academic research papers, which differed from the researched essays typically written in ENGH 101 for public audiences. Samples were selected using randomized course enrollment lists to insure the best possible representative sample.

The **ENGH 100/101/122 Student Samples Rubric** was used for this assessment. The rubric was developed by Mason Composition faculty as a tool to assess individual student work on six learning tasks or outcomes. The rubric uses four performance descriptors: Novice, Emerging Proficiency, Proficient, and Advanced, as well as an option for "Not Applicable/No Evidence." The performance descriptors are developmental, identifying student performance levels in a context of learning and growth. The rubric is intended to be used in these three courses only, and it is scaffolded to align with the **AAC&U Written Communication VALUE Rubric** (2009).

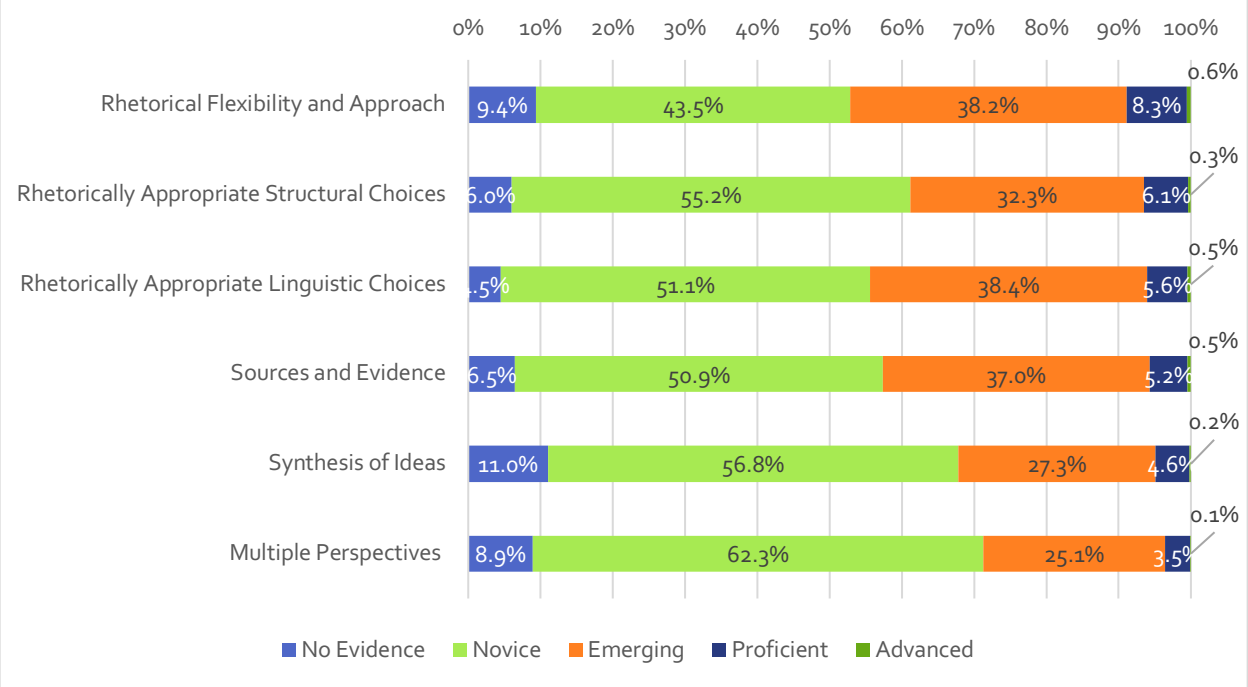
Faculty reviewers were trained to use the rubric to assess student work. Reviews were normed to produce consistent ratings across reviewers. Reviewers met for an in-person, one-day training and review session and completed the reviews of student work by the end of the day. Reviewers were faculty members who have taught Mason Core Composition courses. Reviewers earned a small stipend for their efforts. Each student work sample was assessed

twice. Results were analyzed for interrater reliability; discrepant reviews were resolved using a third review.

### *Learning Outcomes Assessment Results*

Figures 71-77 displays results from 432 randomly selected student work samples rated on the rubric. Figure 71 displays results by outcome for all samples. Figures 72-77 disaggregate the results by outcome and course. A rating of "no evidence" was used when the learning outcome could not be seen in the sample; this could mean that either the assignment did not require application of the outcome, or that the student did not demonstrate it. A "no evidence" rating provides important information in aggregate but is given no value for an individual sample.

*Figure 71. Assessment Results, Aggregated, including "No Evidence" Ratings*



Assessment Results, Disaggregated by Outcome and Course

*Figure 72. Rhetorical Flexibility and Approach*

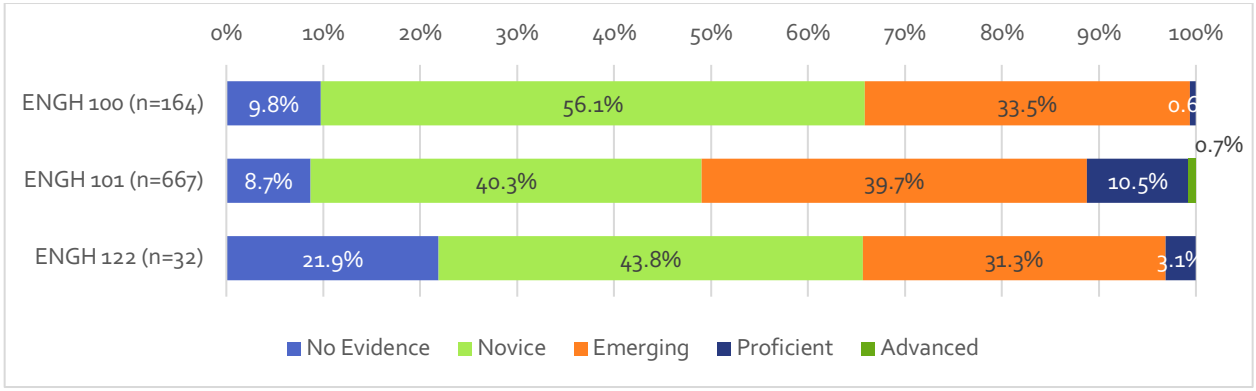



*Figure 73. Rhetorically Appropriate Structural Choices*

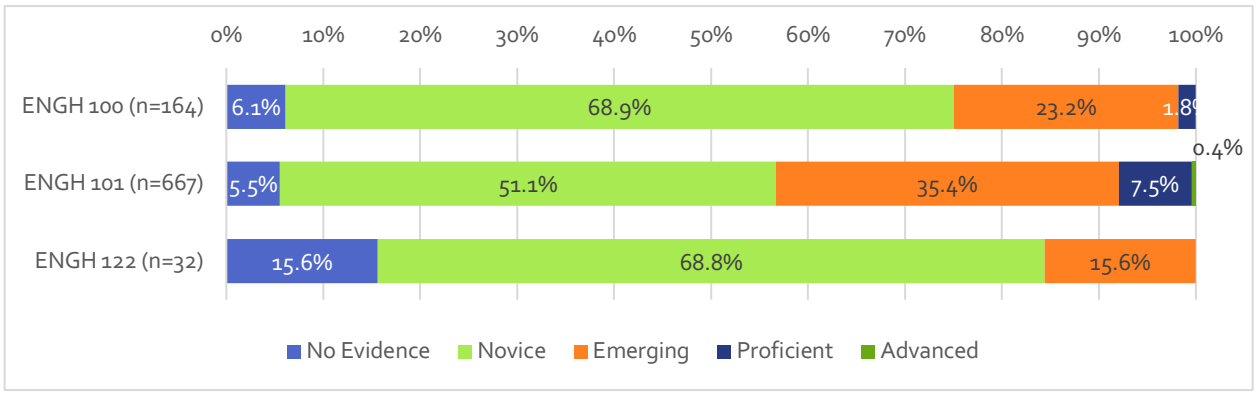



*Figure 74. Rhetorically Appropriate Linguistic Choices*

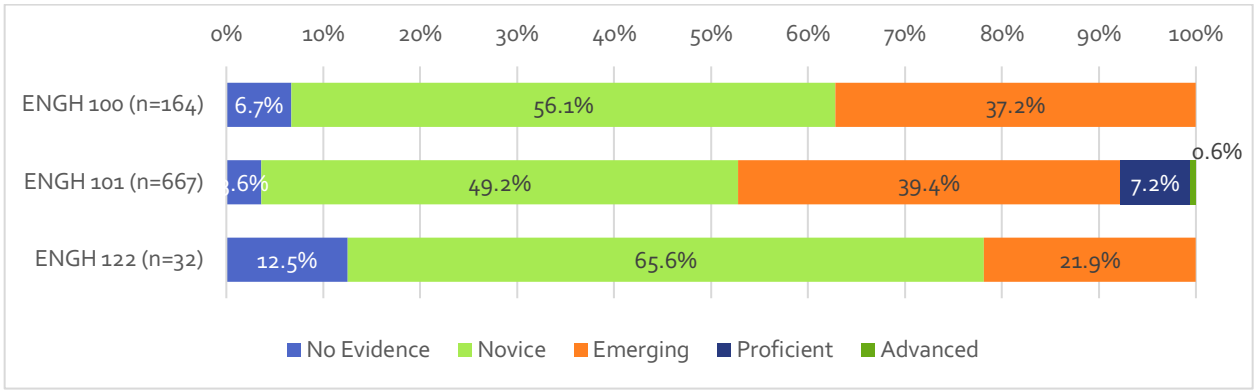


*Figure 75. Sources and Evidence*

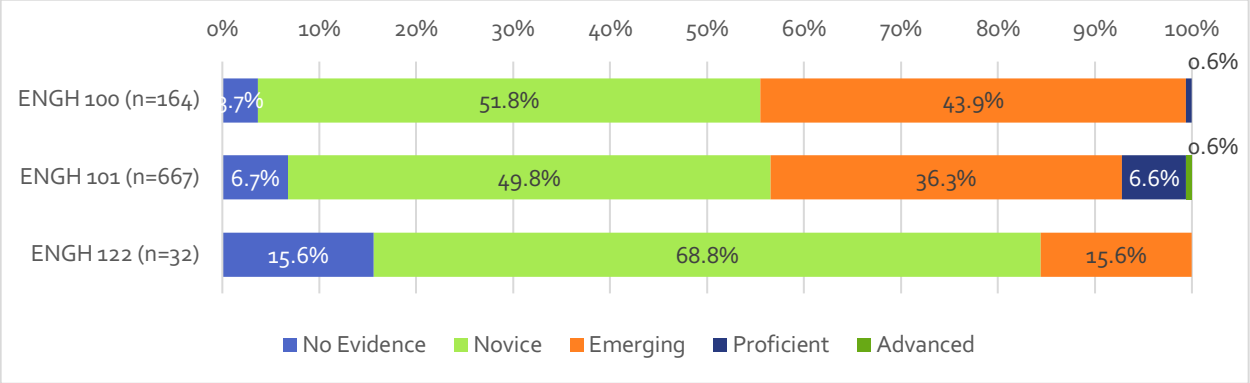



*Figure 76. Synthesis of Ideas*

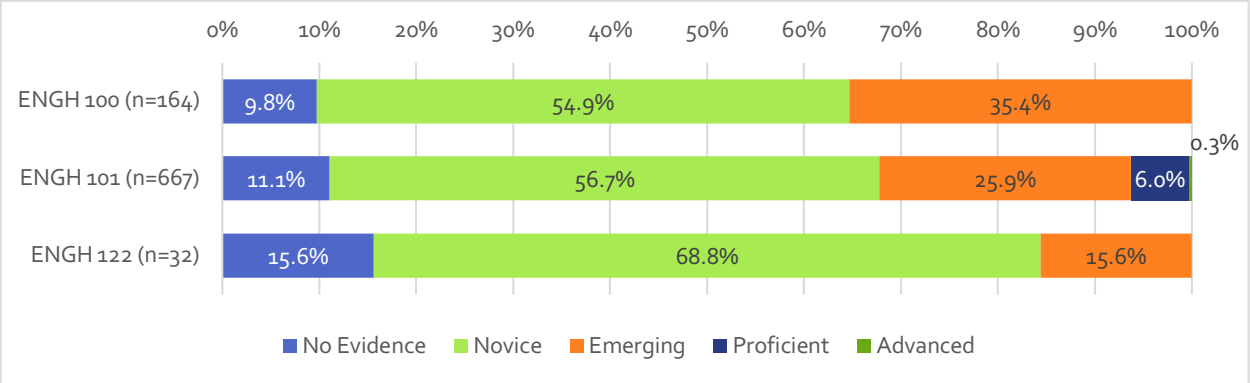
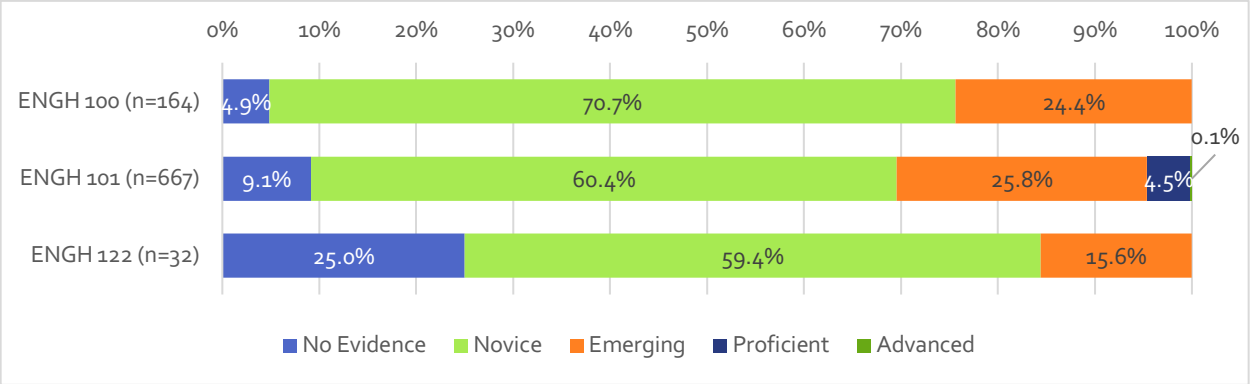



*Figure 77. Multiple Perspectives*




## Highlights from Analysis of Results

Data were analyzed to ascertain differences in achieving the six learning outcomes. Comparison tests were conducted using nonparametric statistics because rubric data are

ordinal; Independent-Samples Mann-Whitney *U*, ($p$ <.05) was used when analyzing differences between two groups, and Independent-Samples Kruskal–Wallis *H* test was used to analyze differences across three or more groups or courses. Demographic groups included gender, race/ethnicity, and transfer status. "No evidence" was treated as missing. Significant findings ($p$ <.05) are noted below.

- Overall, student samples were most likely to be rated as Novice (43.5 – 63.4%), with 25-38% rated as Emerging.
- Students in ENGH 101 were more likely to receive higher ratings on all outcomes.
- Mason Korea samples performed significantly better than Fairfax samples on two outcomes: **Rhetorical Flexibility and Approach** and **Synthesis of Ideas** (see Table 28).
- There were significant differences overall by gender on two outcomes: **Rhetorically Appropriate Linguistic Choices** and **Sources and Evidence**. On both outcomes, students identified as female earned higher scores than students identified as male.
    - For ENGH 101, there were differences by gender on one outcome only: **Rhetorically Appropriate Linguistic Choices**, for which students identified as female earned higher scores on average than students identified as male.
- There were no differences in any course by race or ethnicity.

Because ENGH 100 and 122 are designed for students who need additional language instruction, assessment results were compared between these courses. Differences were found on two outcomes: **Sources and Evidence** and **Synthesis of Ideas**. Students in ENGH 100 performed significantly higher on these two outcomes than students in ENGH 122.

## Assessment Methods and Results: Written Communication – Upper Division Composition

Student written work samples were requested from a random selection of course sections taught in the assessment period. Faculty were asked to submit samples from the final drafts of the research paper (for all courses) due at the end of the semester. Samples were selected using randomized course enrollment lists to insure the best possible representative sample.

The **English 302 Revised Research Project Rubric, Adapted from the *Students as Scholars* Master Rubric** was used for this assessment. The rubric was developed by Mason Composition faculty as a tool to assess individual student work on three learning tasks or outcomes that scaffold to the inquiry outcomes for the *Students as Scholars* undergraduate research initiative. The rubric uses five performance descriptors: Novice, Emerging Proficiency, Approaching Proficiency, Proficient, and Exceptional. The performance descriptors are developmental, identifying student performance levels in a context of learning and growth.

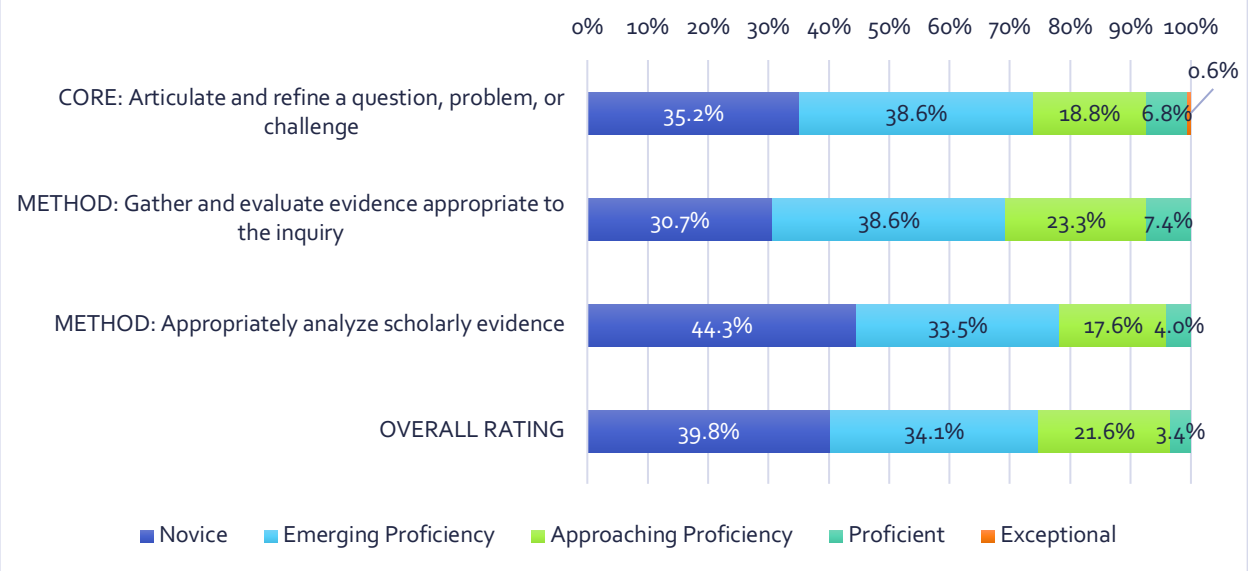
Faculty reviewers were trained to use the rubric to assess student work. Reviews were normed to produce consistent ratings across reviewers. There were two review sessions: one for ENGH 302 and a second for HNRS 110 and 302. Reviewers for the first session met for an in-person, one-day training and review session and completed the reviews of student work by the end of the day. Reviewers for the second session were recruited from the first, and were asked to complete the reviews on their own during a two-week period in August 2019. Reviewers were faculty members who have taught ENGH 302 or HNRS 110 courses. They earned a small stipend for their efforts.

Each student work sample was assessed twice. Results were analyzed for interrater reliability; discrepant reviews were resolved using a third review.

## Learning Outcomes Assessment Results

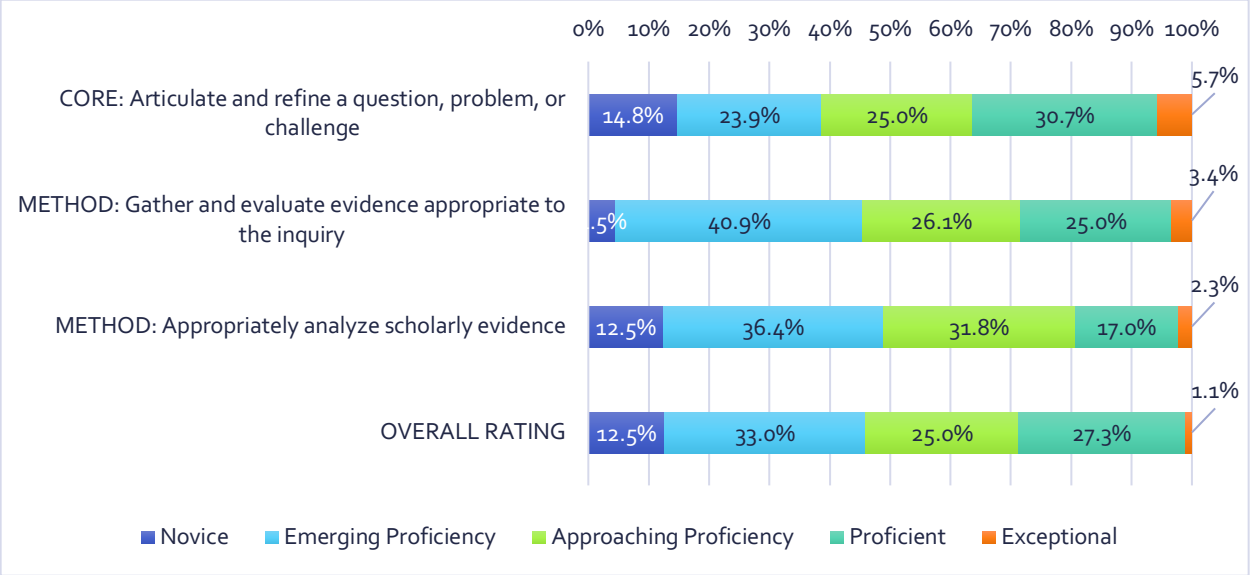
Figures 78 and 79 display results from 153 randomly selected student work samples rated on the rubric, for a total of 264 ratings (some samples received only one rating). There were 176 ratings for ENGH 302 and 88 ratings for HNRS 110/302. Samples received ratings on three outcomes as well as an "overall" holistic rating. There were no differences in performance between HNRS 110 and HNRS 302, so they were grouped to form a more robust comparison group to ENGH 302. Because analysis showed differences between ENGH 302 and HNRS 110/302, the results are displayed in separate charts.

*Figure 78. Assessment Results, ENGH 302*




n=176

*Figure 79. Assessment Results, HNRS 110/302 (Combined)*




n=88

## *Highlights from Analysis of Results*

Data were analyzed to ascertain differences between courses and among students in achieving the three learning outcomes. Comparison tests were conducted using nonparametric statistics because rubric data are ordinal; Independent-Samples Mann-Whitney *U*, ($p$ <.05) was used when analyzing differences between two groups, and Independent-Samples Kruskal–Wallis *H* test was used to analyze differences across three or more groups or courses. Demographic groups included gender, race/ethnicity, and transfer status. Significant findings ($p$ <.05) are noted below.

- There were significant differences between ENGH 302 and HNRS 110/302 on all outcomes, with HNRS samples performing higher on every outcome.
    - For ENGH 302, more than a third of samples performed at the Emerging Proficiency level, with slightly more performing at Novice on each outcome. About a quarter of these samples performed at the Approaching, Proficient, or Exceptional level (combined).
    - For HNRS 110/302, samples received higher scores, with an average 44.6% performing at Novice or Emerging Proficiency. More than 55% of samples performed at Approaching, Proficient, or Exceptional level (combined).
- *DEMOGRAPHICS:* There were no differences in performance by gender for ENGH 302. For HNRS 110/302, there were differences by gender on the Core outcome, for which

students identified as female (n=60) performed better than students identified as male (n=28). There were no differences by race/ethnicity for any of the three courses.

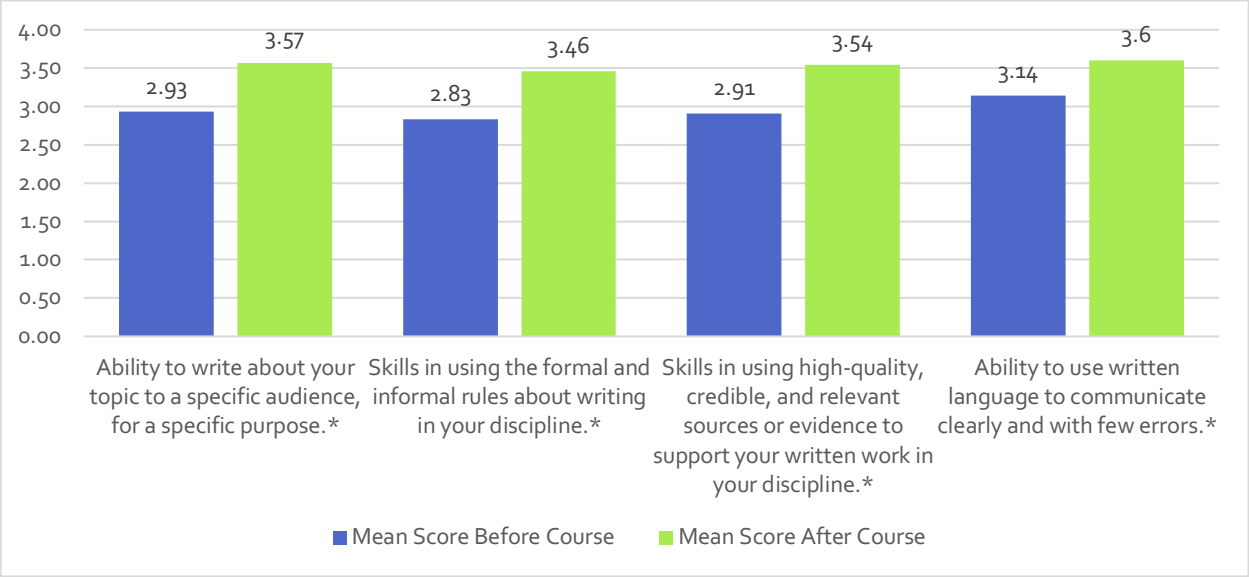
- *TRANSFER STATUS:* Students who entered Mason as freshmen (n=71) performed significantly better on all outcomes in ENGH 302 than students who entered as transfer (n=101). As all HNRS 110 students enter as freshmen, and there were few HNRS 302 students, no analysis could be performed for HNRS.

### *Student Self-Assessment*

All students who were enrolled in ENGH 100, ENGH 101, ENGH 302, HNRS 110, and HNRS 302 in fall 2018 received an online self-assessment survey at the end of the semester. The retrospective pre-post self-assessment asked students to rate their knowledge and skills on four learning outcomes at the beginning of the semester (pre), and then again at the end of the semester (post). This was the same survey that was administered to students in the Writing Intensive (WI) courses in spring 2018.

For ENGH 100 and 101, 135 students completed both the pre and post items, resulting in a 7.3% response rate. A t-test pairwise comparison showed significant perceived learning gains on all four outcomes (see Figure 80).

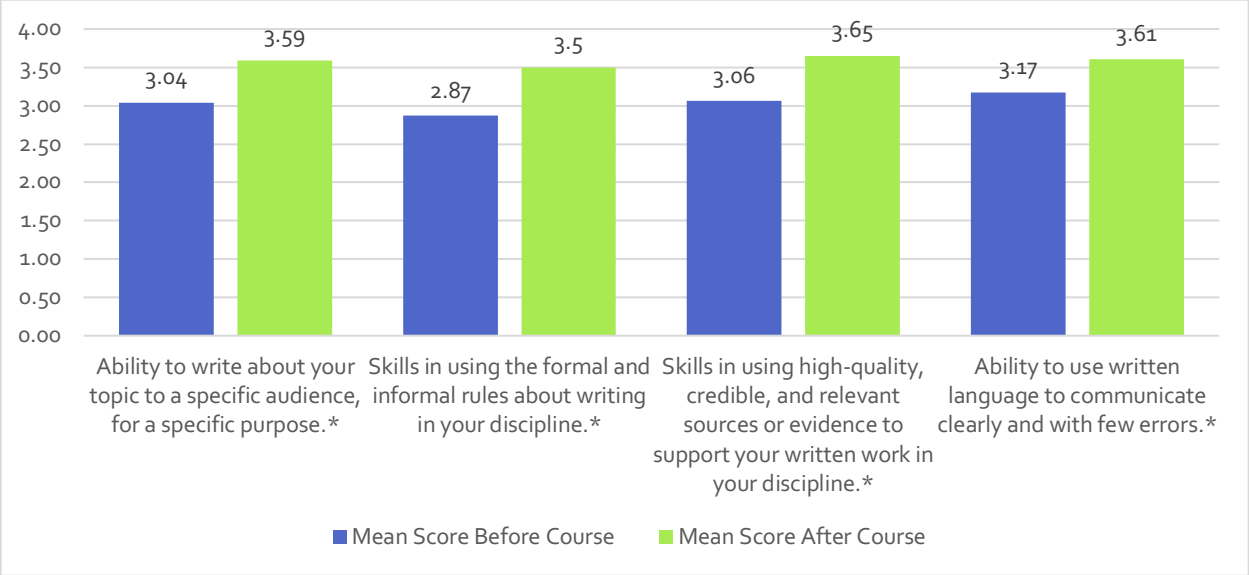
*Figure 80. Mean Scores on Student Learning Self-Assessment for ENGH 100 and ENGH 101*




Mean scores, self-reported on a scale of 1-4, n=135, * $p < .05$

For ENGH 302, HNRS 110 and 302, 211 students completed both the pre and post items, resulting in a six percent response rate. A t-test pairwise comparison showed significant perceived learning gains on all four outcomes (see Figure 81). There were no differences in responses between ENGH and HNRS students.

*Figure 81. Mean Scores on Student Learning Self-Assessment for ENGH 302, HNRS 110 and 302*




Mean scores, self-reported on a scale of 1-4, n=211, * $p < .05$

## How do the Results Meet Expectations?[12]

Given the likelihood that most students in lower division Written Communication courses are in their first or second year at Mason, it was entirely expected that they would perform mostly at the novice or emerging levels across the board. The Composition leadership team had anticipated that a fair percentage of student work would fall in the "No Evidence" category because some elements of the rubric are best measured through a combination of students' writing and reflection on that work. We were not as clear in asking for both of these sets of materials from faculty for submission to the assessment, which means that the "No Evidence" category is likely higher than it would otherwise be because reflective work was not available for many of the samples.

We anticipated that there could be differences in the performance of students in ENGH 100, ENGH 101, and ENGH 122. Because these courses serve various student populations, including students with lower TOEFL scores who take ENGH 122, and because the courses employ different approaches to teaching writing, it is not surprising that there are differences in student performance.

We had suspected that students who take ENGH 100, ENGH 101, or ENGH 122 at Mason would perform better in ENGH 302 than students who do not have this experience. This is not a surprising result, but it is very useful information for our program to consider as we think about how to help transfer students transition into ENGH 302 and how to explain the value of the lower division Written Communication courses at Mason.

[12] Narrative for this section was prepared by the English Composition Program leadership

Given the diversity seen at Mason, including in the Written Communication courses, we are very pleased that there are no differences in student performance based on race or ethnicity. Historically, the field of writing studies has highlighted writing program policies and practices that work against students of color and limit their performance in writing classes, and it is encouraging that students seem to be getting adequate support across the board in Mason's writing program, regardless of their race or ethnicity.

## How are Results Being Used to Improve Students' Educational Experience?[13]

Because of the lack of reflective material in the lower division Written Communication assessment, our team actually decided to request assessment samples from faculty teaching these classes in fall 2019 that included both students' writing and their reflections. Our hope was to assess this work in spring 2020 to see if there were differences in the "No Evidence" category in particular. However, with COVID-19 and the pivoting we have had to do in order to support our faculty in moving instruction online, we have had to scale back this revised assessment. The work has been collected and blinded, but we likely will not assess it until fall 2020 or spring 2021 in order to do this comparison to these results. We are curious, though, if inclusion of the reflective materials will change how much work is assessed as being in the "No Evidence" category.

Particular attention to the context and purpose for writing has become an increased focus in ENGH 101 in the last 2-3 years, so this is something that we are continuing to pay attention to, build into program templates including a new template focused on students putting together multiple multimodal pieces for a public writing campaign, and that we would expect to see ongoing improvement in over the next few years given relatively recent curricular changes to focus on the rhetorical context and purpose for writing in ENGH 101 and rather recent changes to program policies about template use to achieve more curricular consistency. Only within the past 2-3 years have syllabus templates for new instructors been developed to help them onboard into the program and to create more consistency within the classes, and this is something our program continues to refine (for example, by building online templates for new online instructors).

Support for ENGH 100 in particular has been lacking for many years. In fall 2019, CHSS finally supported the appointment of Anna Habib as Associate Director of Multilingual Composition in the Composition Program, and she also serves as the INTO Mason English Liaison focusing on both the graduate and undergraduate levels, including ENGH 121 and 122, and as the Mason Korea English Liaison. Her appointment as well as support through a term faculty grant in summer 2020 marks a shift in the program towards more support for these classes in particular and for all of our faculty who are teaching multilingual students. She has been working with a task force this year to put together faculty workshops, and she will be working on further

[13] Narrative for this section was prepared by the English Composition Program leadership

professional development support and ENGH 100 curriculum materials this summer. We anticipate these will allow for the better support of ENGH 100 students.

Our program is also in the midst of ongoing conversations about alignment between ENGH 100, ENGH 101, and ENGH 121/122. Other programs around the nation have approached alignment between courses in different ways: some have the same learning outcomes for all courses while other differentiate learning outcomes for different courses and student populations. This work will likely continue for several years as we determine the best course forward for Mason's students. These assessment results will enable us to make more informed decisions about how linguistic proficiency levels align with student performance on these outcomes. INTO Mason students in ENGH 122 and ENGH 100 come in with language proficiency levels below the university requirement. It is almost impossible to expect that these students will be able to move beyond the "novice" benchmark on any of the rubric criteria since they are learning English as an additional language, adapting to the cultural expectations of the U.S. academy, while also working towards the Mason Core Written Communication Outcomes.

In order to help students to make well-founded decisions about whether to take ENGH 100 and ENGH 101, which currently is left to student self-selection based on catalog information, we are also discussing the implementation of a directed self-placement process. Such a process, which has been implemented in writing programs across the nation, would help students assess their literacy backgrounds and look at detailed information about these classes to make a strong decision about which class would be best for them. This project is on hold for now because of COVID-19, but we hope to be able to develop this process in the next couple years.

We are also currently gathering data from Advanced Composition courses that track students forward from the lower division Written Communication assessment performed in spring 2019 so that we can perform a longitudinal assessment of how well the same students perform at these different levels. Unlike the fall 2017 and fall 2018 assessment, our assessment of Advanced Composition student work will use the same rubric used to assess work from lower division Written Communication courses in spring 2019 so that we can compare student performance across these classes. This will allow us to consider student performance growth over time and to think further about the alignment between these courses.

Given some of the differences between transfer student performance in ENGH 302 and the performance of those students who have gone through ENGH 101 at Mason, we have been working on creating relationships with advisors that will help students gain the information they need about the class and its prerequisites. One step in this direction was the development of an infographic about the Written Communication and Literature requirements in Mason Core that we developed last year in response to confusion over these requirements[14]. We hope that these show the alignment between these courses and help students and advisors understand how the courses develop students' reading and writing skills.

[14] https://composition.gmu.edu/about/writing-requirements

Associate Director Jessica Matthews and Assistant Director Lourdes Fernandez are in the middle of a research project comparing student performance in online, hybrid, and face-to-face versions of ENGH 302 that will help us consider how to best teach students in these modalities. We have found that there are statistically significant higher rates of failure for students who take ENGH 302 online versus those who take it face-to-face or hybrid. Our program is working to support faculty teaching these classes and students who are in these through work with the Stearns Center and through the development of online templates and professional development support for faculty. In addition, Lourdes Fernandez led a hybrid task force this year that has created additional support for faculty teaching hybrid courses in the program. Much of this work has been supported through a *Students as Scholars* grant that has allowed our program to run faculty learning communities and conduct research that otherwise would not have been possible.

## Limitations of this Assessment

The rubrics used in this assessment were created by program faculty to assess learning on program-specific outcomes, and course assignments were carefully constructed to align with these outcomes. Samples were collected by random selection, and assessments were normed. In all of these ways, this was a strong assessment. The primary limitation was the smaller than ideal sample sizes for Advanced Composition (ENGH 302 and HNRS 110/302). After many years of conducting assessments each semester on a previous rubric, this assessment focused on validating a new rubric. Still, the sample sizes produce sufficiently robust results for a rubric-based assessment.

Program faculty who work with English language learners and multilingual writers expressed concern that the *ENGH 100/101/122 Student Samples Rubric* may not be completely valid to assess student work from these students because of the developmental process of language and literacy development. Faculty also expressed concern about the training and norming of reviewers to fairly assess this work. These concerns will be addressed with the Composition program leadership as the rubric and assessment process are revisited.

## Assessment Rubric(s)

The rubrics used in these assessments were developed by a team of Mason English Composition faculty to evaluate student work for the Mason Core learning outcomes in Written Communication. The rubrics are designed to evaluate student performance on the learning outcomes using authentic work produced in the course of the semester, with increasingly sophisticated performance descriptors for each outcome.

*Table 27. Enrollment in Mason Core Written Communication Courses, AY2015-19*

| | AY2015 | | AY2016 | | AY2017 | | AY2018 | | AY2019 | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Course** | **#Sections** | **Enroll** | **#Sections** | **Enroll** | **#Sections** | **Enroll** | **#Sections** | **Enroll** | **#Sections** | **Enroll** |
| ENGH 100 | 14 | 245 | 18 | 271 | 18 | 298 | 19 | 291 | 22 | 286 |
| ENGH 101 | 131 | 2,410 | 130 | 2,393 | 124 | 2,300 | 143 | 2,544 | 140 | 2,516 |
| ENGH 122 | 2 | 22 | 9 | 125 | 12 | 150 | 8 | 103 | 7 | 96 |
| **Lower Division TOTAL** | **147** | **2,677** | **157** | **2,789** | **154** | **2,748** | **170** | **2,938** | **169** | **2,898** |
| ENGH 302 | 294 | 5,984 | 310 | 6,175 | 320 | 6,370 | 340 | 6,811 | 313 | 6,258 |
| HNRS 110 | 12 | 282 | 15 | 373 | 17 | 402 | 18 | 430 | 20 | 482 |
| HNRS 302 | 0 | 0 | 1 | 18 | 1 | 10 | 2 | 17 | 1 | 26 |
| **Advanced TOTAL** | **306** | **6,266** | **326** | **6,566** | **338** | **6,782** | **360** | **7,258** | **334** | **6,766** |
| **All Courses TOTAL** | **453** | **8,943** | **483** | **9,355** | **492** | **9,530** | **530** | **10,196** | **503** | **9,664** |

*Figure 82. Five-Year Enrollment Trends in Mason Core Written Communication Courses, AY2015-19*

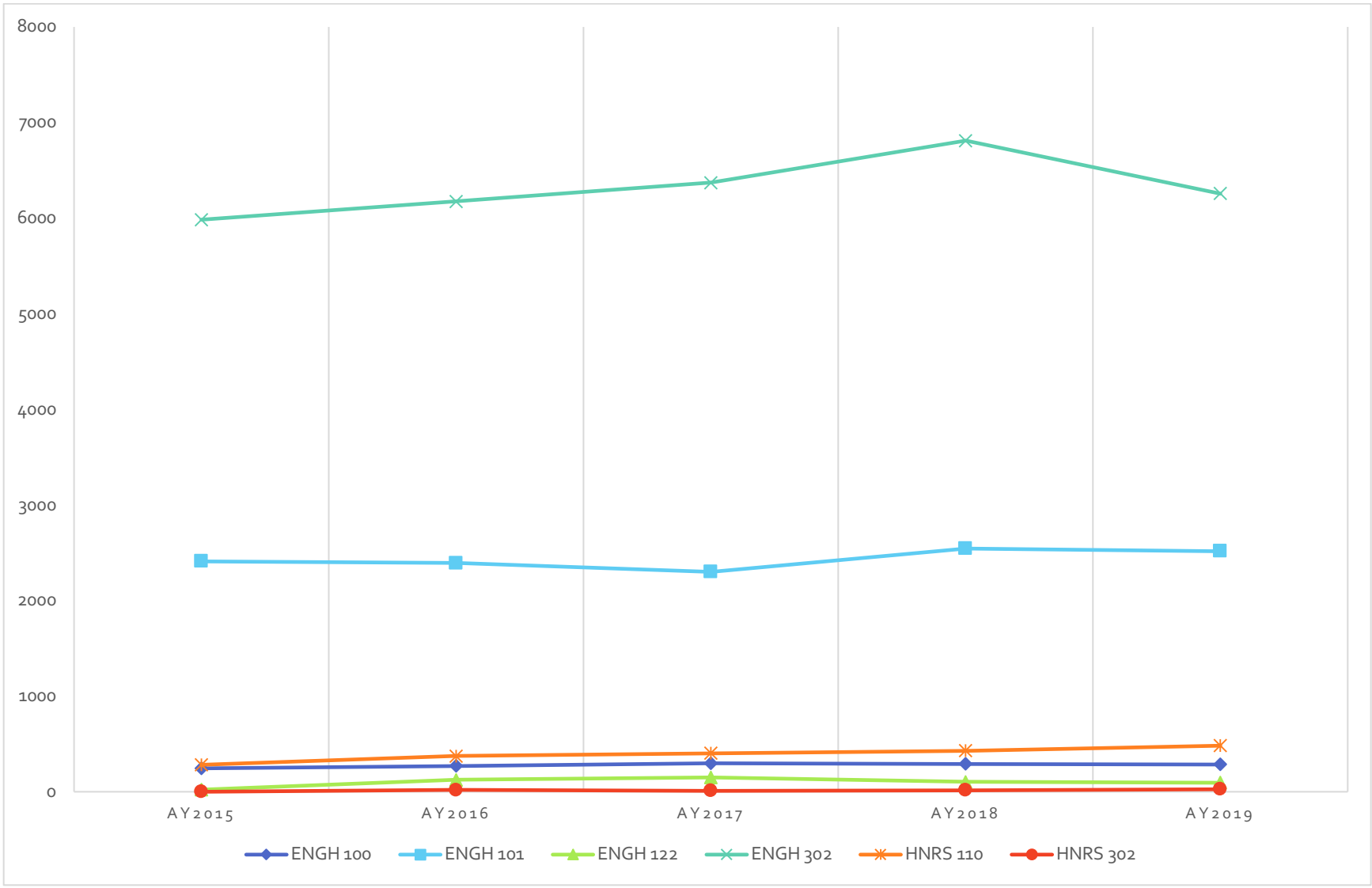


*Table 28. Mann-Whitney U Comparison of Sample Ratings for ENGH 100, Fairfax vs. Korea Campus Sections*

| | Mean Rank (n) | | | | | |
|---|---|---|---|---|---|---|
| | **Fairfax** | **Korea** | ***U*** | **Z** | **p** | **Sig.** |
| **Rhetorical Flexibility and Approach** | 68.24 (71) | 80.27 (77) | 2289.00 | -2.027 | 0.043 | * |
| **Rhetorically Appropriate Structural Choices** | 77.13 | 77.85 | 2935.00 | -0.129 | 0.897 | |
| **Rhetorically Appropriate Linguistic Choices** | 79.85 (75) | 74.04 (79) | 2703.00 | -0.955 | 0.339 | |
| **Sources and Evidence** | 78.59 (78) | 80.33 (75) | 3044.00 | -0.275 | 0.783 | |
| **Synthesis of Ideas** | 67.70 (70) | 80.60 (78) | 2254.00 | -2.162 | 0.031 | * |
| **Multiple Perspectives** | 75.36 (74) | 81.33 (82) | 2802.00 | -1.089 | 0.276 | |

*$p < .05$

# Written Communication in the Major

## Description and Learning Outcomes

Written communication is one of the foundation requirements of the Mason Core curriculum. Mason's nationally recognized writing program emphasizes writing as a process and as a tool for learning; it is not simply a way of communicating already formulated thoughts, but a way of discovering, exploring, and developing new ideas. On their way to completing a paper, students go through the recursive processes of researching, drafting, and revising.

This assessment of student writing draws samples from Mason's Writing Intensive (WI) courses. Students take WI courses in their major in their junior or senior year.

### *What makes a course writing intensive?*

Writing Intensive (WI) in the Major courses instruct students in the main types of writing practiced by members of the discipline. The course must give students opportunities to draft and revise based on instructor feedback so that they can practice the writing processes, forms, and conventions expected in the field.

- Section size is limited to 35
- WI courses must be offered and taken in the major
- WI courses must carry 3-credits and be offered at the 300 or 400 level
- Faculty devote significant time to writing instruction
- Students receive instructor feedback on their writing
- Students revise at least one substantive assignment using feedback
- All writing assignments count substantially toward the final grades
- Students write at least 3500 words over two or more assignments

Writing Intensive courses are approved and guided by Mason's Writing Across the Curriculum (WAC) program and committee (wac.gmu.edu).

## Approved Courses and Enrollment

Students enroll in the approved Writing Intensive course for their major and degree program. Courses approved as Writing Intensive can be found in the University Catalog. WI courses enroll over 10,000 students each year with an average class size of 21 (see Table 30). Figure 88 shows enrollment trends over the past five years by college and school.

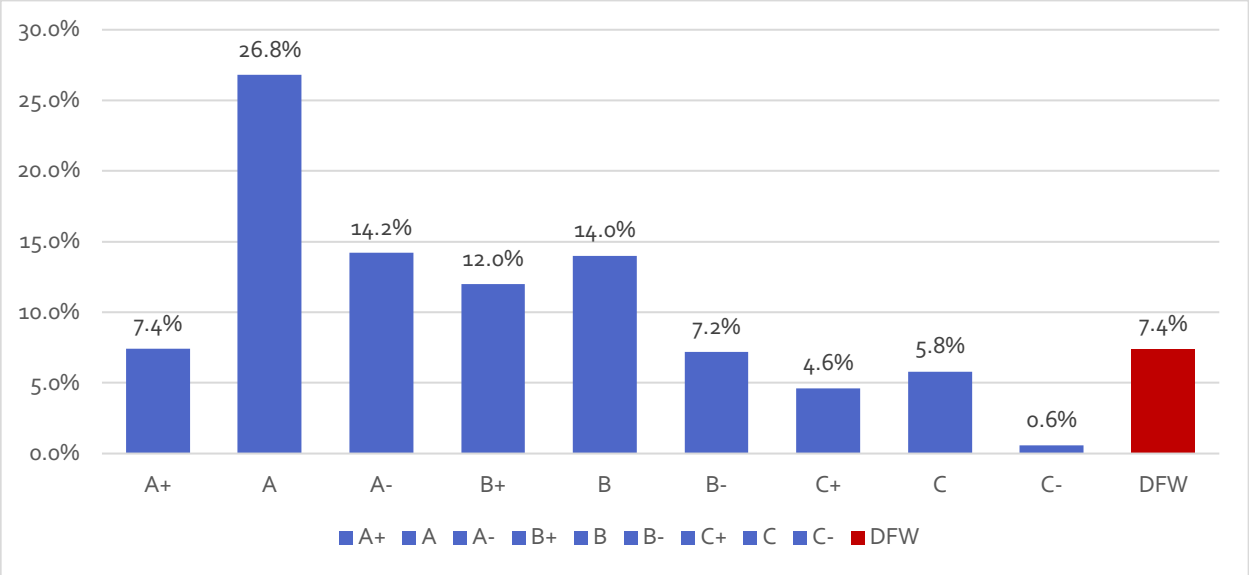
## Courses Included in Assessment

The assessment period included all sections of the 139 WI courses taught in spring 2018, Mason Korea in fall 2018, and Honors 353 in spring 2019 (see pp. 159-161 for a listing). All courses that were offered in the assessment period were expected to participate. Of the 160 course sections included in the assessment period, 72% submitted materials.

### *Enrollment and Grades Distribution*

A total of 4,257 students enrolled in courses across 55 subjects in the assessment period. Of these students, 93% passed their WI courses with a C- or above, and 81.5% of students earned A or B grades (see Figure 83).

*Figure 83. Final Grades Distribution in the Assessment Period*




## Assessment Methods

Student written work samples were requested from all course sections taught in the assessment period. Faculty were asked to submit samples that represented final student submissions completed in the final third part of the semester, and allowed students to demonstrate their learning on one or more of the expected course learning outcomes. Samples were selected using randomized course enrollment lists to insure the best possible representative sample. Table 29 shows samples by student primary college compared to spring 2018 undergraduate enrollment.

*Table 29. Assessment Samples by Student Primary College, compared to Enrollment*

| Student Primary College | Samples | | Spring 2018 Enrollment Degree-Seeking Undergraduates | |
|---|---|---|---|---|
| | N | Percent | N | Percent |
| BUS | 51 | 11.3% | 3,962 | 17.2% |
| CEHD | 27 | 6.0% | 858 | 3.7% |
| CHHS | 38 | 8.4% | 1,910 | 8.3% |
| CHSS | 131 | 29.0% | 6,065 | 26.4% |
| COS | 59 | 13.1% | 2,638 | 11.5% |
| CVPA | 40 | 8.9% | 1,288 | 5.6% |
| S-CAR | 3 | 0.7% | 174 | 0.8% |
| SSPG | 15 | 3.3% | 733 | 3.2% |
| UN | 5 | 1.1% | 44 | 0.2% |
| VSE | 82 | 18.2% | 5,302 | 23.1% |
| **Total** | **451** | | **22,974** | |

The **AAC&U VALUE Rubric for Written Communication** was used for this assessment. The VALUE Rubric was selected in consultation with the WAC committee as a tool to assess written work on five learning tasks or outcomes (context and purpose for writing, content development, genre and disciplinary conventions, sources and evidence, and control of syntax and mechanics) across genres and writing styles. The rubric uses four performance descriptors: Benchmark, Emerging Milestone, Advanced Milestone, and Capstone, and an option for "no evidence." The performance descriptors are developmental, identifying student performance levels in a context of learning and growth. The rubric is intended to be used across all of the years of a student's college experience, and is not limited to a single course, assignment, or student class level. The VALUE Rubric has been used in a national assessment (cite McConnell & Rhodes, 2017) of student writing and allows for comparison of results to a national sample.

Using a process modeled after the VALUE Institute reviewer calibration, faculty reviewers were trained to use the rubric to assess student work. Reviews were normed to produce consistent ratings across reviewers. Reviewers met for an in-person, one-day training and review session and completed the reviews of student work by the end of the day. Reviewers were faculty members who have taught WI courses and represented a diversity of academic units. Reviewers earned a small stipend for their efforts.

Each student work sample was assessed twice. Results were analyzed for interrater reliability; discrepant reviews were resolved using a third review.

## Learning Outcomes Assessment Results

Figures 84 and 85 display results from 451 randomly selected student work samples rated on the **Written Communication VALUE Rubric**. A rating of "no evidence" was used when there was no evidence of the learning outcome; this could mean that either the assignment did not require application of the outcome, or that the student did not demonstrate it. A "no evidence" rating provides important information in aggregate but is given no value for an individual sample.

*Figure 84. Assessment Results, Aggregated, including "No Evidence" Ratings*

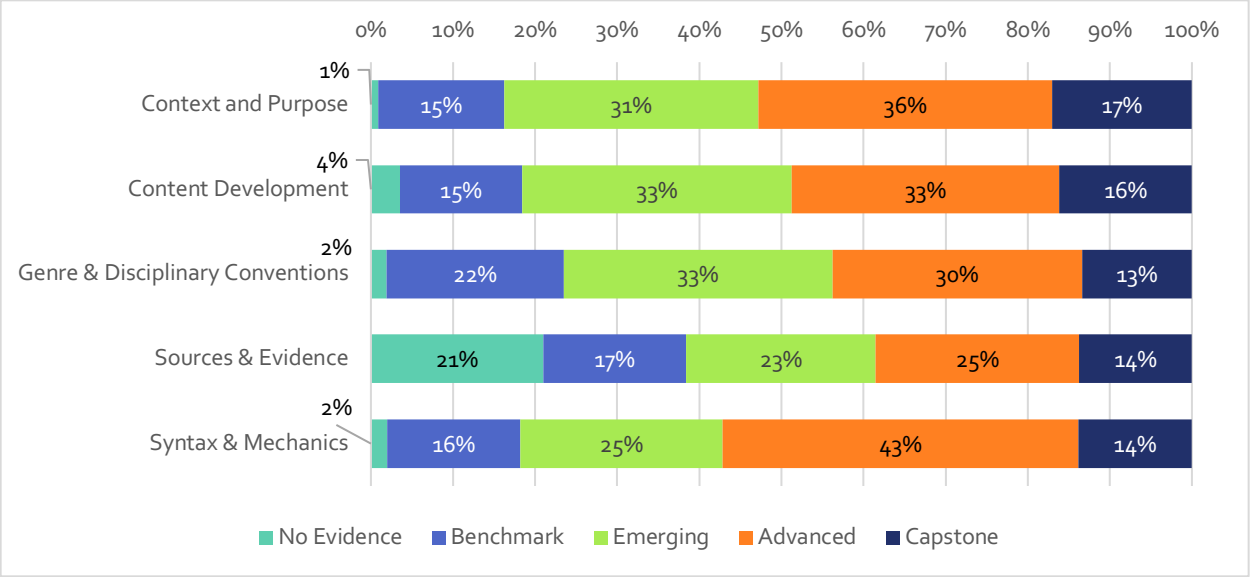
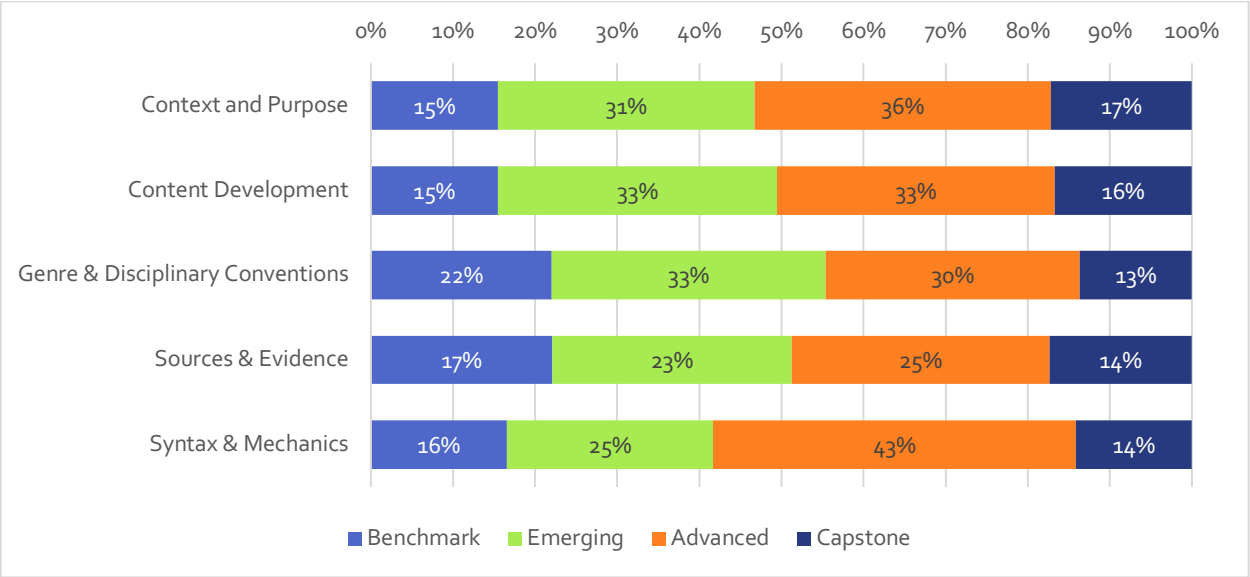



*Figure 85. Assessment Results, Aggregated, excluding "No Evidence" Ratings*



## *Highlights from Analysis of Results*

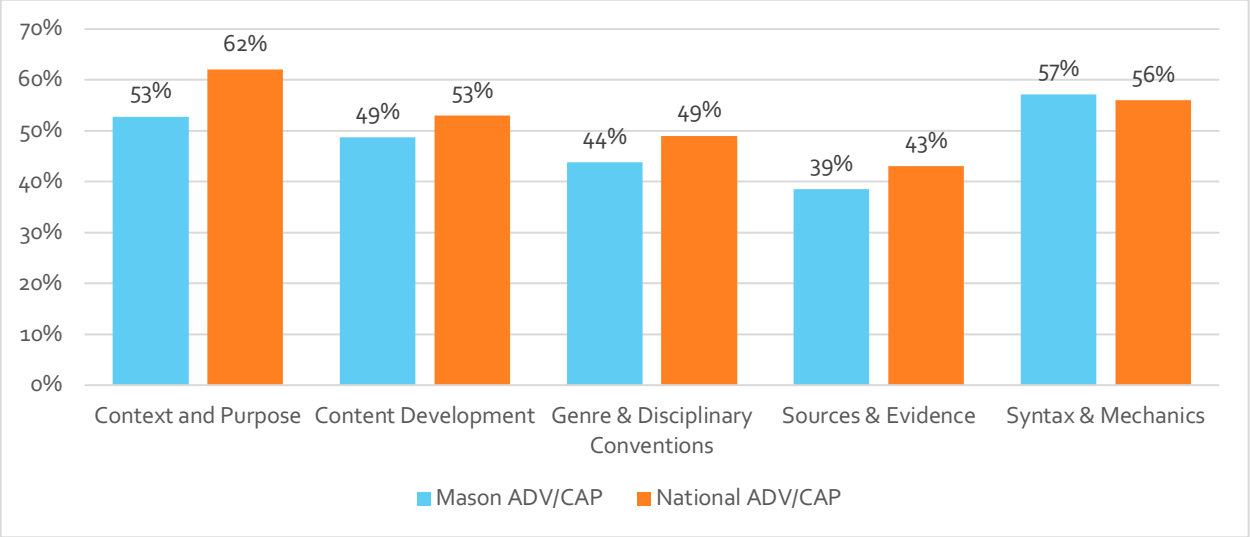
Results were analyzed to ascertain differences between certain demographic groups (i.e. gender, race, and transfer status). Comparison tests were conducted using nonparametric statistics because rubric data are ordinal; Independent-Samples Mann-Whitney *U*, ($p < .05$) was used when analyzing differences between two groups, and Kruskal–Wallis *H* test was used when analyzing differences among three or more groups. Significant findings are marked with an asterisk (*) and noted below.

- 21% of samples were rated as "no evidence" for the outcome "Sources & Evidence," meaning that students did not use sources or evidence in their writing sample, or the writing assignment did not require it. Not all forms of scholarly writing require use of sources and evidence (e.g. creative writing).
- Students who started at Mason as freshmen performed significantly higher on all written communication outcomes than did transfer students (n=218 freshmen; n=229 transfer).*
- When groups were compared in the aggregate dataset, there appeared to be differences on all five outcomes based on gender and by race/ethnicity. However, when controlling for college/school of the student's major, all differences in performance disappeared. There were significant differences among colleges, indicating differences either in student performance or writing task across disciplines.
- There were no observed differences in performance between juniors and seniors on any of the written communication outcomes (n=87 juniors; n=355 seniors).

## *How do Mason Students Compare?*

In comparing results from a 2017 national study (McConnell & Rhodes, 2017) using samples of student work from seniors at 4-year institutions, this assessment suggests that Mason students perform somewhat less well overall than their peers on combined ratings of Advanced + Capstone. Similar to Mason, national data revealed that students were least likely to show that they used Sources & Evidence in their writing assignments. Note that this is an observational comparison; the raw data from the national study was not available to perform a statistical comparison. See Figure 86.

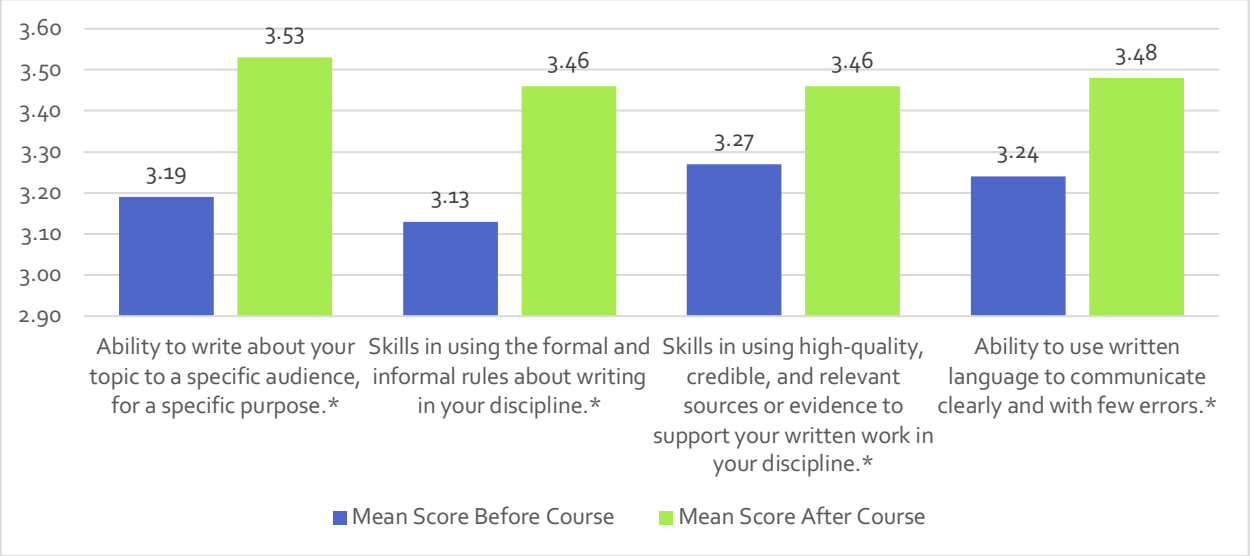
*Figure 86. Mason Student Results Compared to National Results from 4-year Institutions*




## *Student Self-Assessment*

All students who were enrolled in a WI course during the assessment period received an online self-assessment survey at the end of the semester. The retrospective pre-post self-assessment asked students to rate their knowledge and skills on four learning outcomes at the beginning of the semester (pre), and then again at the end of the semester (post). In total, 743 students completed both the pre and post items, resulting in a 17% response rate. A t-test pairwise comparison showed significant perceived learning gains on all four outcomes (see Figure 87).

*Figure 87. Mean Scores on Student Learning Self-Assessment*




Mean scores, self-reported on a scale of 1-4, n=405, * $p < .05$

## How do the Results Meet Expectations?

Because this was the first time that Mason used the **Written Communication VALUE Rubric** to assess student performance across the disciplines, these data provide baseline information. In post-assessment conversations with faculty, many expressed disappointment that scores were not higher overall for juniors and seniors, though it was noted that the score patterns follow similar patterns from the national data. Faculty expressed a desire for improved scores in the next assessment.

## How are Results Being Used to Improve Students' Educational Experience?

A series of open meetings (including an online option) were held in fall 2018 to share results. Participating faculty identified challenges regarding their own preparation for teaching writing in WI courses, and noted a need for better writing assignments, better assessment rubrics for their courses and programs, and strategies for helping students transfer learning from one course to the next. Several faculty also identified a need for training in how to work with multilingual and international students on their English-language writing skills. Faculty were encouraged to use the assessment information and VALUE rubric to review their courses and programs and develop a collective response to the needs of the students in their programs.

Assessment results are being used by an institutional coalition of the Writing Across the Curriculum program, the Composition program, the Writing Center, the Multilingual Learners Academic Support Committee, The Stearns Center for Teaching and Learning, and the Office of Undergraduate Education. Strategies for supporting faculty have been implemented, including online resources, targeted workshops in academic units, one-on-one coaching, and further review of WI courses. Collaborative efforts to improve WI courses and instruction are ongoing.

## Limitations of this Assessment

This assessment was the largest that Mason has ever done for writing in the majors. Written work was sampled at random and represents the general student population. Some considerations when reviewing these results:

- Mason enrolls a large population of students who were raised in homes in which English was not their first, primary, or only language. Faculty who teach WI courses and writing program administrators have requested that the assessment data be disaggregated to understand the performance of these multilingual students. As there is no marker to identify these students in the institutional data file, the analysis of assessment data cannot be done.
- Many disciplines use collaborative writing assignments. This assessment does not work for collaborative writing, and so those samples were not included. WAC is developing

resources for collaborative writing, and tools for effective assessment are being explored.

- The **VALUE Rubric for Written Communication** appears to be limited for assessing creative writing. Additional challenges may include assessing writing for computer science, information technology, and accounting.

For assessment of WI courses and research white papers produced by WAC, see https://wac.gmu.edu/wi-course-resources/assessment-of-wi-courses/

## Assessment Rubric(s)

## Writing Intensive Courses Offered in the Assessment Period

ACCT 461 Assurance and Audit Services
ANTH 490 Theories, Methods and Issues II
ARAB 331 Reading and Conversation II
ARAB 440 Islam and the Modern Age
ARTH 394 The Museum
ARTH 420 Roman Imperial Sculpture
ARTH 472 RS: Mexican Muralism
AVT 385 EcoArt
AVT 395 Writing for Artists
AVT 497 Senior Project
AVT 498 Senior Design Project
BAS 491 Applied Sciences Capstone
BENG 304 Mod/Contrl Physiological Systs
BENG 492 Senior Adv Engr Design Proj I
BENG 493 RS:Senior Adv Design Projct II
BENG 495 Bioengineering Senior Sem II
BIOL 301 Biology and Society
BIOL 308 Foundation Ecology/Evolution
BIS 390 The Research Process
BIS 490 RS: Bach Individual Study Proj
BUS 498 Capstone Crs:Adv Bus Mod
CDS 302 Scientific Data and Databases
CEIE 301 Eng/Econ Models-Civil Eng
CEIE 490 Sr Dsgn Proj: Urban Devel Dsgn
CHEM 336 Physical Chemistry Lab I
CHEM 465 Biochemistry Laboratory
CHIN 355 Rdngs Chin Poetry/Poetic
CLIM 408 Senior Research
COMM 300 Foundations Public Communicatn
COMM 362 Argument and Public Policy
COMM 454 Free Speech and Ethics
CONF 302 Culture, Identity, & Conflict
CONF 490 RS: Integration
CONS 490 RS:Integrated Conserva Strateg
CONS 491 RS: Conservation Mgmt Plan
CRIM 495 Capstone in Crim, Law, Society
CS 306 Synt Ethics/Law for Comp Profe
CS 321 Software Engineering
CYSE 491 Engineering Senior Seminar
CYSE 493 Senior Adv Design Project II
DANC 391 Dance History II
DANC 490 Senior Dance Seminar
ECE 333 Linear Electronics I
ECE 445 Computer Organization
ECE 491 Engineering Seminar
ECE 492 Senior Adv Design Proj I

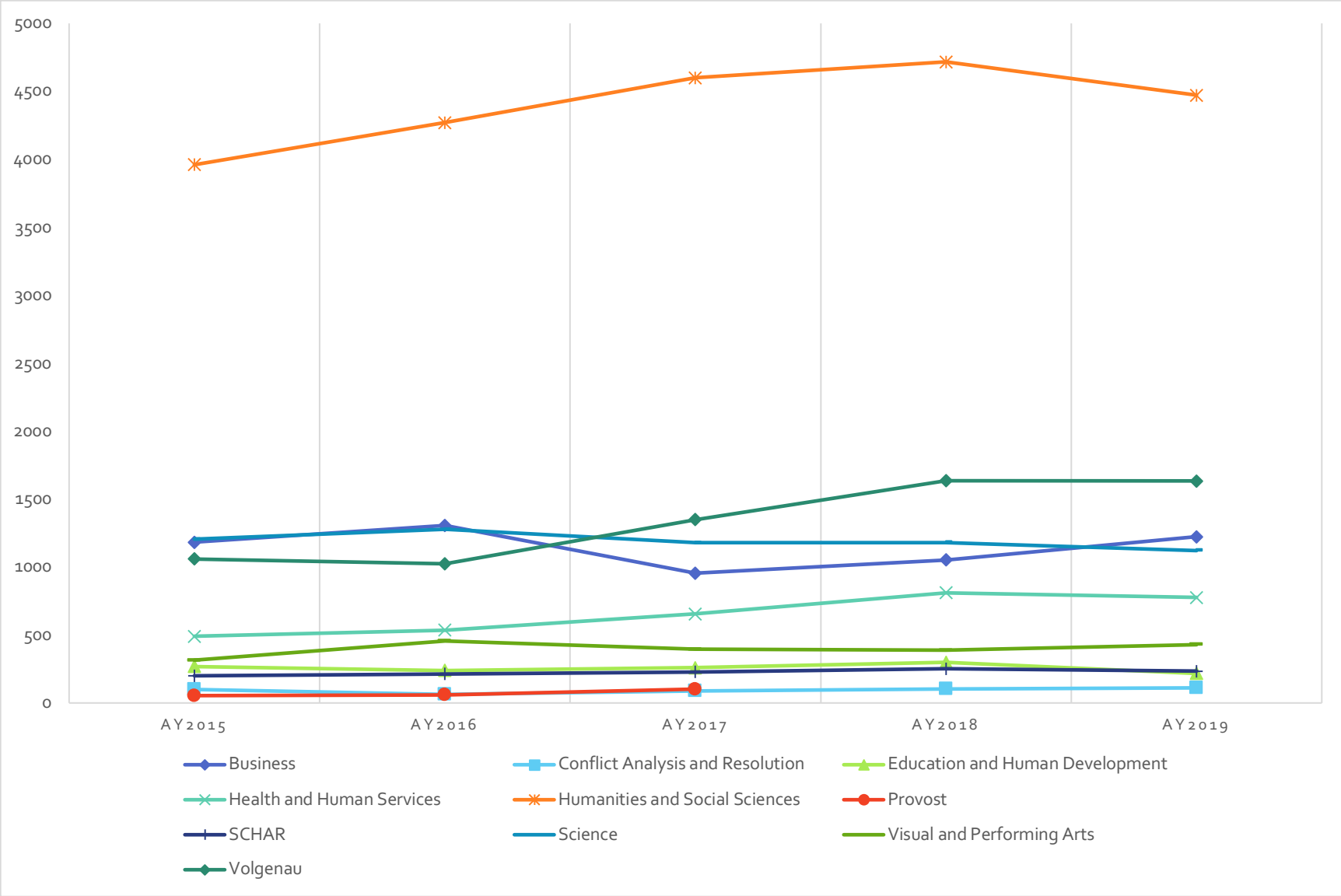
ECE 493 RS: Senior Adv Design Proj II
ECON 309 Econ Problms and Publ Policies
ECON 345 Introduction to Econometrics
ECON 355 Political Eco Nonprofits Inst
ECON 365 Economic History
ECON 435 Economics of Energy
EDCI 490 Student Teaching in Education
ENGH 305 Dimensions Writing and Lit
ENGH 373 Film and Video Forms
ENGH 401 RS: Honors Thesis Writing Sem
ENGH 417 RS: Appalachian Folklore
ENGH 458 Kipling and Imperialism
ENGH 484 RS: Writing Ethnography
ENGH 486 RS:Writing Nonfic for Publictn
ENGH 495 Capstone and Thesis
EVPP 337 Envir Policy Making-Dev Cntry
EVPP 480 Sustainability in Action
FAVS 352 Ethics of Film and Video
FAVS 470 Film and Video Screenwriting
FAVS 496 Advanced Visual Storytelling
FAVS 497 Sr Film Practic: Video Editing
FAVS 498 Creative Producing/Development
FAVS 499 Senior Project
FNAN 498 Contemporary Topics in Finance
FREN 309 Reading and Writing Skills Dev
FRLN 385 Multilingualsm, Identity/Power
FRSC 302 Forensic Trace Analysis
FRSC 304 Forensic Chemistry
GAME 332 RS:Story Design for Comp Games
GAME 490 Senior Game Design Capstone
GCH 411 Health Prgm Planning/Evaluatn
GEOL 305 Environmental Geology
GEOL 420 Earth Science and Policy
GGS 303 Geog of Resource Conservation
GGS 415 Seminar in Geography
GLOA 400 Global Crisis
GOVT 490 Synthesis Seminar(topics vary)
HAP 465 Integration Prof Skills/Issues
HAP 489 Pre-Internship Seminar
HAP 498 Healthcare Managemt Internship
HDFS 400 Advanced Family Processes
HDFS 401 Family Law/Public Policy
HIST 300 Introduction Historical Method
HIST 499 RS: Senior Seminar in History
HNRS 353 Technology in the Contemporary World (Topics)
INTS 334 Environmental Justice
INTS 391 Intro Integrative Studies
IT 343 IT Project Management
IT 492 Senior Design Project I
IT 493 Senior Design Project II
KINE 450 Research Methods
KINE 490 Kinesiology Internship III

MATH 290 Intro to Advanced Mathematics
MATH 400 History of Math (Topic Varies)
ME 444 Mechanical Design II
MGMT 313 Organizational Behavior
MIS 330 Systems Analysis and Design
MKTG 471 Marketing Management
MLAB 300 Science Writing
MUSI 324 Junior Recital
MUSI 332 Music History Society II
MUSI 424 Senior Recital
MUSI 491 Musical Comm in Perform
MUSI 495 Internship in Music Education
NEUR 411 When Good Cells Go Bad
NURS 465 Exam/Integrtn Prof/Hlthcre Iss
PHED 340 Social and Cultural Issues PE
PHED 415 Std Teach in Phys Educ
PHIL 309 Bioethics
PHIL 421 The Philosophy Of Hannah Arendt
PHIL 422 The Philosophy Of Hannah Arendt
PHYS 407 Sr Lab in Modern Physics
PRLS 490 Recreation Managmnt Internship
PSYC 301 Research Methods in Psyc
PSYC 304 Principles of Learning
PSYC 309 Sens/Percept/Info Proc
PSYC 405 Mystery, Madness, and Murder
PSYC 427 Community Engagement
RELI 420 Sr Sem: Wrld Relg Confl & Dial
RHBS 499 Senior Capstone in Rehab Sci
RUSS 353 Russian Civilization
SOCI 377 Art and Society
SOCI 412 Contemporary Soci Theory
SOCI 485 RS:Sociological Analysis/Pract
SOCW 375 Human Behavior/Family
SOCW 472 RS: Integ Meth Social Actn/Chg
SPAN 370 Spanish Writing and Stylistics
SPMT 490 Internship
SRST 450 Research Methods
SYST 495 Senior Design Project II
THR 350 Script Analysis
THR 440 Adv Stud Dir/Dramaturgy
TOUR 490 HTEM Internship

*Table 30. Enrollment in Writing Intensive Courses by College/School, Excluding Independent Study and Courses with Enrollment Fewer than Five Students, AY2015-19*

| | AY2015 | | AY2016 | | AY2017 | | AY2018 | | AY2019 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | #Course Sections | Enroll | #Course Sections | Enroll | #Course Sections | Enroll | #Course Sections | Enroll | #Course Sections | Enroll |
| **Business** | 43 | 1,183 | 49 | 1306 | 40 | 955 | 38 | 1,052 | 44 | 1,223 |
| **Conflict Analysis and Resolution** | 5 | 101 | 4 | 63 | 4 | 89 | 4 | 103 | 5 | 111 |
| **Education and Human Development** | 17 | 269 | 16 | 239 | 18 | 259 | 21 | 299 | 17 | 217 |
| **Health and Human Services** | 23 | 491 | 25 | 536 | 29 | 655 | 36 | 810 | 36 | 776 |
| **Humanities and Social Sciences** | 201 | 3,960 | 211 | 4,270 | 221 | 4,599 | 238 | 4,717 | 236 | 4,472 |
| **Provost** | 2 | 54 | 2 | 60 | 4 | 102 | | | | |
| **SCHAR** | 8 | 200 | 10 | 214 | 10 | 229 | 13 | 252 | 11 | 234 |
| **Science** | 64 | 1,205 | 69 | 1,278 | 62 | 1,179 | 67 | 1,180 | 64 | 1,121 |
| **Visual and Performing Arts** | 16 | 315 | 21 | 456 | 19 | 395 | 21 | 387 | 23 | 430 |
| **Volgenau** | 37 | 1,059 | 34 | 1,024 | 44 | 1,349 | 50 | 1,635 | 55 | 1,633 |
| **TOTAL** | **416** | **8,837** | **441** | **9,446** | **451** | **9,811** | **488** | **10,435** | **491** | **10,217** |

*Figure 88. Five-Year Enrollment Trends in Writing Intensive Courses by College/School, AY2015-19*



# Indirect Assessment: Surveys

Indirect assessment collects information about people's perceptions of their learning, including opinions, satisfaction, and self-assessment. Indirect assessment includes surveys, interviews, focus groups, and self-evaluation. Indirect assessment is important to help us understand the student and faculty experience with teaching and learning. Good assessment practice uses both direct and indirect methods as a way of triangulating assessment findings as well as identifying what works, what does not work, and questions for further study.

The three surveys included in this report provide a venue for student and faculty voices to talk about their experiences with teaching and learning in the Mason Core.

The **Graduating Senior Survey (GSS)** is administered to all graduating seniors. The items included items included here represent student perception of their learning on outcomes that map to the Mason Core.

The **Mason Core Student Surveys** are brief self-assessments that were sent to students enrolled in Mason Core courses at the end of each assessment semester. Quantitative responses are provided in the respective category reports; open-ended responses were analyzed and themes are presented in this section.

The **Faculty Participant Survey** was sent to all faculty who participated in the pre-assessment workshops, served on a working group, or served as a reviewer. The survey asked faculty to reflect on what they learned through the assessment process and what they planned to implement in their own practice.

# Graduating Senior Survey 2016 – 2019:
# Selected Results on General Education Competencies

Office of Institutional Effectiveness and Planning | George Mason University
January 2020

The Graduating Senior Survey (GSS) was administered to all graduating seniors each academic year at Mason. This document presents students' self-reported competencies based on the survey results from academic years 2015-16 to 2018-19. The survey response rates for the four years are summarized in Table 1.

Item-level percentages of responses overall and by transfer status are presented in Table 2. Trend analysis results are displayed in Figures 1-7 to highlight change in each competency area over time. Complete GSS results for the university, by college/school, and by department are available at https://ira.gmu.edu/.

*Table 1. GSS Response Rates*

| Academic Year | Number of Graduates | Response Rate |
|---|---|---|
| **2015-16 (2016)** | 5,086 | 36% |
| **2016-17 (2017)** | 5,270 | 32% |
| **2017-18 (2018)** | 5,506 | 31% |
| **2018-19 (2019)** | 5,710 | 38% |

## Summary of Key Findings

***Percentage of Responses***

Overall, the majority of respondents (at least 76%) reported that courses in their major contributed "A great deal" or "A fair amount" to their competencies in the areas measured by GSS, a consistent finding across the four years, with noteworthy results in the following areas (see Table 2):

- Critical Thinking and Analysis received the highest positive response (91-93%)
- Conducting Research within Your Field/Major received the lowest positive response (76-80%)

Looking across the four years, the 2018 percentages of positive responses (i.e., "A great deal" and "A fair amount" combined) were lower compared to those of 2017 and 2019 in several areas, a finding more noticeable among native students compared to their transfer counterparts (73-91% vs. 82-93%, respectively).

***Trend Analysis***
Overall, there was a general trend of improvement in students' self-reported competency between 2016 and 2019 despite a drop in 2018.

Compared to the 2016 graduating class, graduates in subsequent year(s) reported a significantly higher level of competency in the following areas, which can be seen in Figures 1-6:

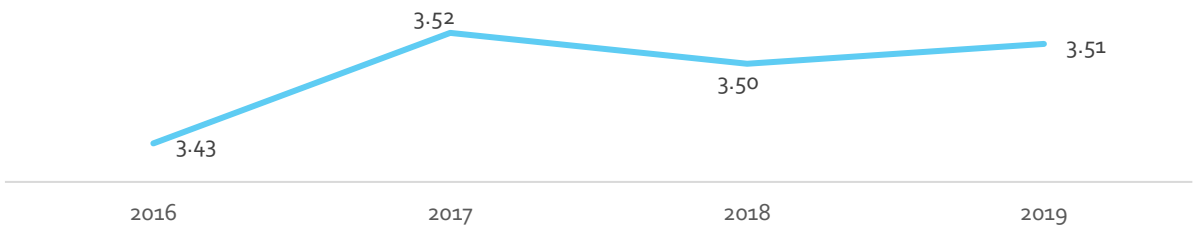
- Critical Thinking and Analysis in all subsequent years
- Connecting Concepts across Disciplines in 2017 and 2019
- Identifying and Assessing the Validity of Assumptions within Your Field/Major in 2017 and 2019
- Conducting Research within Your Field/Major in 2017
- Identifying, Locating, Evaluating and Managing Information Resources within Your Field/Major in 2017

Between 2017 and 2018, there was a significant decrease in self-reported competency in the following areas:

- Identifying, Locating, Evaluating and Managing Information Resources within Your Field/Major (Figure 5)
- Identifying and Assessing the Validity of Assumptions within Your Field/Major (Figure 6)

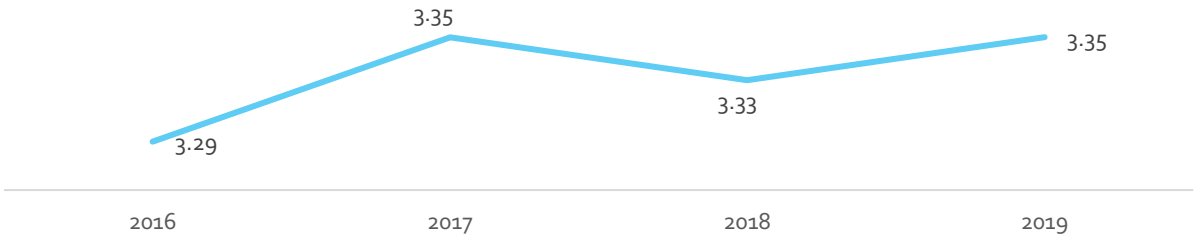
***Trend Analysis***
Numbers displayed in the following graphs represent average score on a scale from 1(Not at all) to 4(A great deal).

*Figure 1: Critical Thinking and Analysis*



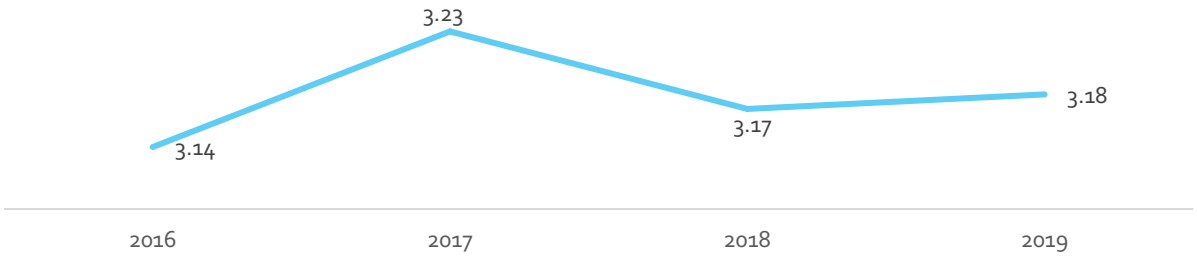

*N=1733, 1590, 1617, and 2047 for 2016, 2017, 2018, and 2019, respectively. Significant change overtime at p < 0.001, ANOVA. Post hoc comparisons: 2016 < 2017, 2018, and 2019, all significant at .01.*

*Figure 2: Connecting Concepts across Disciplines*



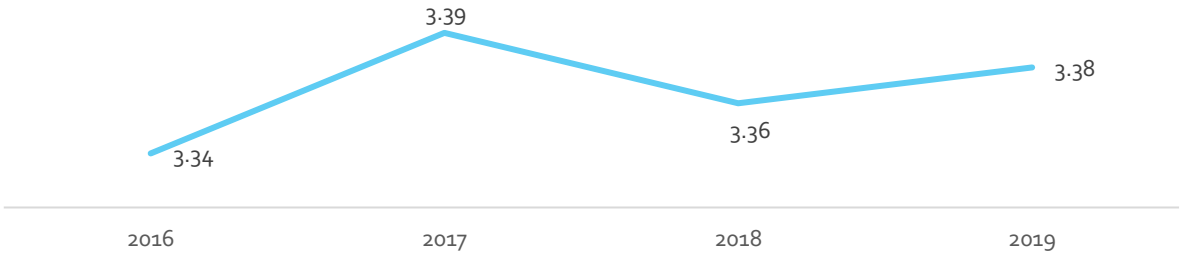

*N=1727, 1592, 1617, and 2044 for 2016, 2017, 2018, and 2019, respectively. Significant change overtime at p < 0.05, ANOVA. Post hoc comparisons: 2016 < 2017 and 2019, both significant at .05.*

*Figure 3: Conducting Research within Your Field/Major*



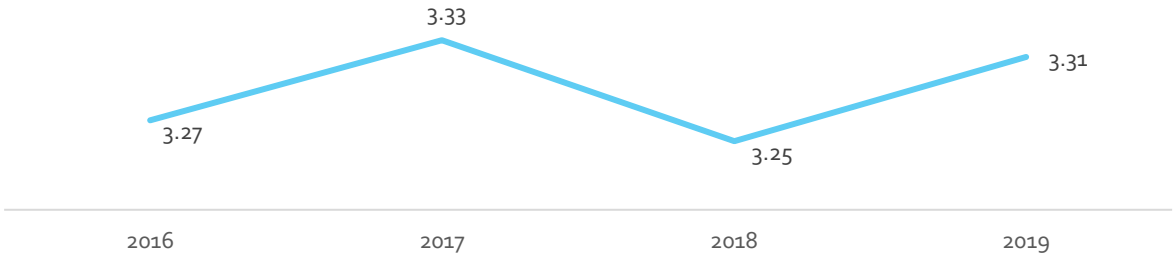

*N=1728, 1586, 1612, and 2038 for 2016, 2017, 2018, and 2019, respectively. Significant change overtime at p = 0.05, ANOVA. Post hoc comparison: 2016 < 2017, significant at .01.*

*Figure 4: Writing within Your Field/Major*



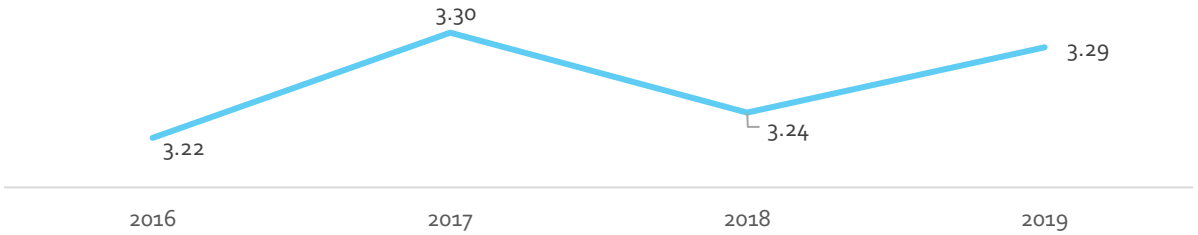

*N=1723, 1590, 1610, and 2034 for 2016, 2017, 2018, and 2019, respectively.*

*Figure 5: Identifying, Locating, Evaluating and Managing Information Resources within Your Field/Major*



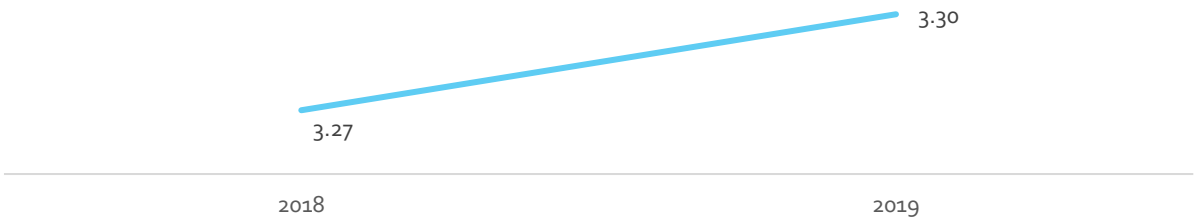

*N=1726, 1587, 1615, and 2039 for 2016, 2017, 2018, and 2019, respectively. Significant change overtime at p < 0.01, ANOVA. Post hoc comparison: 2016 < 2017; 2017 > 2018, both significant at .05.*

*Figure 6: Identifying and Assessing the Validity of Assumptions within Your Field/Major*




*N=1727, 1591, 1613, and 2037 for 2016, 2017, 2018, and 2019, respectively. Significant change overtime at p < 0.01, ANOVA. Post hoc comparison: 2016 < 2017 and 2019; 2017 > 2018, all significant at .05.*

*Figure 7: Communicating with Others in Personal and Professional Contexts (Oral Communication Only)*

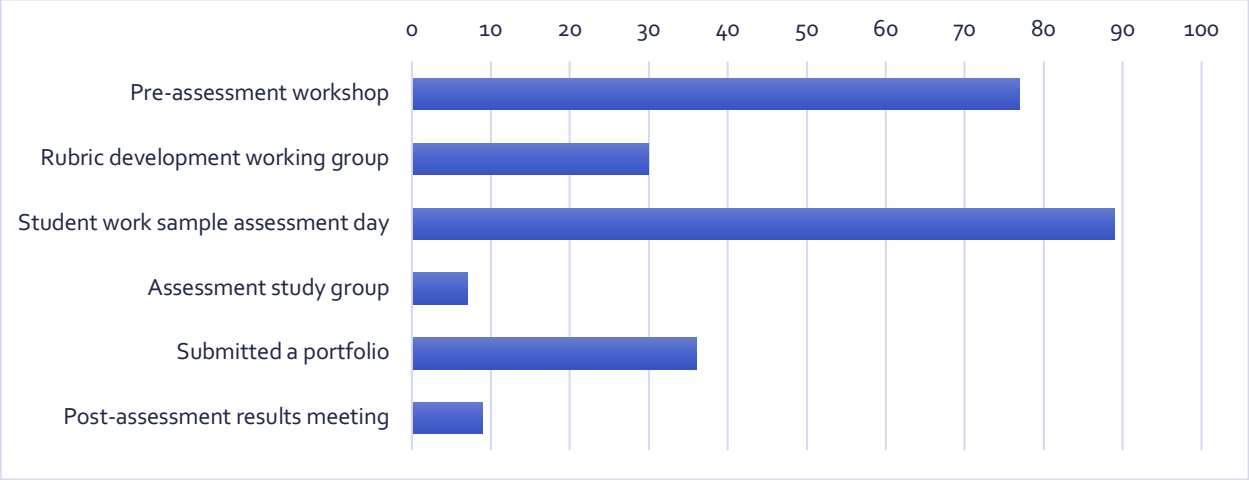



*N=1617 and 2043 for 2018 and 2019, respectively. The item was added in 2018 so there was no data on this item prior to 2018.*

## Faculty Participant Survey

To assess the impact of the professional development strategy, faculty were asked to complete an anonymous online survey following an event in which they participated. The survey asked about how the experience helped them learn or think differently about teaching and assessment, and about what they learned that through the experience that they would consider doing to improve their course or teaching practice. Results are based on 180 total responses. Respondents were most likely to have participated in a pre-assessment workshop or as a reviewer of student work samples. See Figure 89.

*Figure 89. Survey Participant Events*

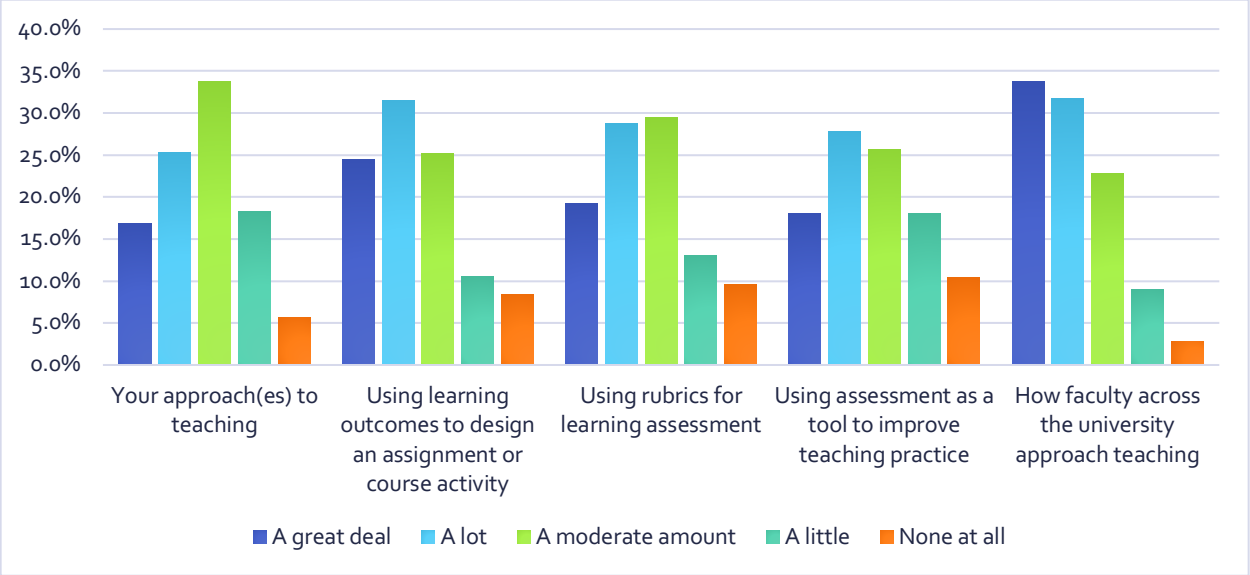



Data are frequency counts; respondents were asked to select "all that apply"

## Likert-Type Items

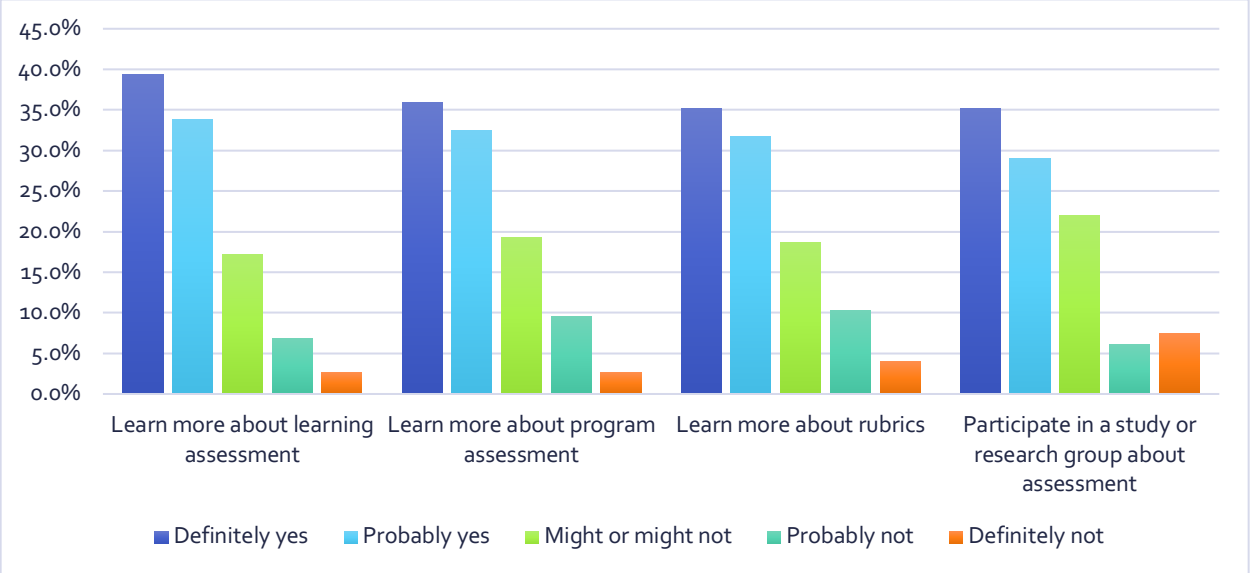
Faculty were asked to respond to two Likert-type items about their experience with the professional development events associated with the Mason Core assessment initiative. The first set of items asked about how the experience helped them learn or think differently about teaching and assessment. The highest rated item was "how faculty across the university approach teaching," with 88% responding that the experience helped them "a moderate amount" or higher. Faculty were least likely to rate the experience as having helped them learn about "using assessment as a tool to improve teaching practice," though 72% reported that the experience helped them "a moderate amount" or higher. See Figure X.

*Figure 90. To what extent did this experience help you learn or think differently about (the following)*




The second item asked faculty what they might want to learn more about regarding assessment. Responses were high overall, with most participants reporting wanting to learn more about learning assessment, program assessment, and rubrics. See Figure x.

*Figure 91. After participating in this experience, would you like to…*



## Open-Ended Responses

Faculty were asked to respond to three optional open-ended items about their experience. These comment data were coded and analyzed for themes. The following is a summary of the most salient themes for each question.

What did you find most interesting about this experience?
n = 159 responses

- Finding similarities or having discussions across disciplines (18% of responses)
- Exchanging ideas with other faculty (16%)
- Learning how to interpret a rubric (9%)
- Reviewing a range of student work (8%)
- Learning outcomes (8%)

What is something from this experience that you would like to learn more about?
n = 75 responses

- Findings/uses of the assessment (20%)
- Rubric development (17%)
- Mason administration's plans for use of the results (8%)
- Applying/using the rubric (7%)

What is one thing you read, heard, or learned through this experience that you would consider doing to improve your course or your teaching practice?
n = 58 responses

- Develop better rubrics (19%)
- Include learning outcomes with each assignment (16%)
- Include student reflection with the writing process (12%)
- Re-evaluate assignments (10%)
- Incorporate assignments other than written work into the course (9%)

# Academic and Student Support Units

Teaching and learning in the Mason Core extends beyond the classroom. The following academic and student support units provide essential services to students and faculty in the Mason Core. The narratives included here were provided by the respective programs.

## Learning Assistants Program

The Learning Assistant (LA) Program is run by the STEM Accelerator Program in the College of Science. LAs are undergraduates who are assigned to work with a particular course and support student learning. LAs' specific responsibilities vary by course, and might include helping to facilitate active-learning activities during class, and/or holding office hours and review sessions outside of class. LAs also meet regularly with course faculty, and all first-time LAs participate in a pedagogy seminar.

### Over half of our LAs serve in Mason Core courses:

| | Fall 17 | Spring 18 | Fall 18 | Spring 19 | Fall 19 |
|---|---|---|---|---|---|
| Natural Sciences | 31 | 40 | 40 | 44 | 46 |
| Quantitative Reasoning | 7 | 7 | 9 | 9 | 14 |
| Social & Behavioral Science | | | | | 1 |
| Synthesis | | | | | 1 |
| Writing-Intensive | 4 | 4 | 6 | 6 | 7 |
| **Total # Mason Core LAs** | **42** | **51** | **55** | **59** | **69** |
| **Total # LAs** | **81** | **91** | **93** | **100** | **108** |

When students attend LA sessions outside of class (including office hours and review sessions) they sign in so that we can track these interactions. The total number of student sign-ins with LAs in Mason Core courses are listed by semester in the table below. These figures should be considered a lower bound, for two reasons. First, the sign-ins have not been consistently enforced, and we know that some LAs have been more diligent than others about making sure that students sign in each time. Contacts were particularly underreported in spring 2018, when we were trying out a new system that proved to be unwieldy. Second, these data only include interactions with LAs **outside of class**, and do not even begin to cover all the interactions between students and LAs during class – in active-learning classrooms, interactive lectures, labs, etc.

| | Fall 17 | Spring 18 | Fall 18 | Spring 19 | Fall 19 |
|---|---|---|---|---|---|
| **Recorded LA interactions in Mason Core courses** | 2,533 | 721 | 1,625 | 1,294 | 1,484 |

## University Libraries

The primary mission of the George Mason University Libraries is to participate in, contribute to and support the teaching, learning, research, and scholarship of the university community. Library programs and services provide support for the overall mission in addition to anticipating changes and trends in educational practice, research, scholarly communication, publishing, and information technology.

The Mason Libraries are a distributed library system comprising four libraries on three campuses:

- Arlington Campus Library,
- Fenwick Library and Gateway Library (Fairfax campus), and
- Mercer Library (Science and Technology campus).

Mason Libraries' programs, resources, and services are promoted and facilitated by:

- working with students, faculty, and staff throughout the teaching, learning, and research processes;
- offering virtual and physical spaces for study, research, collaboration, publication, and academic and cultural events;
- providing access to information in diverse formats;
- encouraging critical thinking and informed citizenship by supporting digital, data, media, and cultural literacy; and
- collaborating with on- and off-campus partners to expand the reach, capacity, and impact of the Libraries.

The University Libraries supports learning in the Mason Core in a variety of ways: information literacy instruction, collaborations with faculty on assignment design, online learning tutorials for point-of-need learning, and student research consultations. While most of these services are directly connected to specific courses, the Libraries also teaches workshops focused on digital literacies, information literacy skills, and other research-based competencies. These workshops serve the entire Mason community and complement the instruction occurring in Mason Core courses.

Course-based instruction, which includes face-to-face, hybrid, and online instruction, encompasses the biggest contribution of the Libraries work within the Mason Core. Additionally, instruction for Mason Core courses makes up approximately half of all instruction provided to undergraduate courses each semester by the Libraries. Through the period of Fall 2017-Fall 2019, library instruction was provided to 817 courses consisting of over 17,000 students. The following table summarizes the number of undergraduate instruction sessions by semester.

| | Library Instruction Sessions for Mason Core Courses | All Undergraduate Instruction | % Mason Core of all Instruction |
|---|---|---|---|
| **Fall 2017** | 194 | 426 | 45.54% |
| **Spring 2018** | 134 | 270 | 49.63% |
| **Summer 2018** | 18 | 36 | 50.00% |
| **Fall 2018** | 154 | 313 | 49.20% |
| **Spring 2019** | 132 | 229 | 57.64% |
| **Summer 2019** | 12 | 19 | 63.16% |
| **Fall 2019** | 173 | 333 | 51.95% |

The University Libraries regularly assesses student learning in Mason Core courses through the "Student Learning Assessment Plan." This three-year plan covers all aspects of information literacy instruction in the University Libraries, but often highlights learning in Mason Core courses. As an example, here is a summary of one Mason Core information literacy assessment project:

> During the Summer 2017, a group of library instructors on the Teaching & Learning Team developed online information literacy modules for ENGH 101 and ENGH 302 to meet the need for sustainable and thoughtful library instruction in the growing number of online and hybrid Composition courses. During the Fall 2017 and Spring 2018 semesters, the modules were deployed in online Composition sections and students completed the associated activities.
>
> After the assessment for ENGH 101, the team determined that additional instruction is needed on developing related terms for searching. Most of the students who had terms not deemed "related" by the reviewers had provided synonyms which were not related to the terms within the context of the research question. Based on the ENGH 302 assessment data, the team decided to review the way citation mining instructional material is presented to determine if there is a way to re-work it and/or add additional instruction to increase the number of students who are able to successfully describe the citation mining strategy they used.

## Writing Across the Curriculum

Mason's Writing Across the Curriculum (WAC) Program recognizes that writing is central to academic life and student success. This core value informs our program mission and the projects we undertake with our cross-campus network of partners. Our integrated approach facilitates Mason's campus-wide culture of writing through the following program:

- Promote writing as a tool for learning and critical thinking
- Support the teaching of writing across the curriculum
- Advise departments on writing curriculum and faculty development
- Research and assess writing and teaching with writing in the disciplines
- Support faculty writing and research productivity

Below is a list of programming supporting the Mason Core between fall 2017 and fall 2019:

**Consultations.** Consulted with 41 individuals and programs about teaching with writing and writing course design.

**Workshops.** Supported faculty through the following workshops:

- Designing writing assignments
- Teaching with writing in any course
- Facilitating the transfer of writing knowledge
- Responding to writers
- Creative play in the writing classroom
- Strategies for efficient feedback

**NoVA-Mason Summits.** Coordinated 4 summits with faculty and staff from both Mason and NoVA on teaching with writing and supporting transfer students

**Faculty Conversations in the Writing Center.** Facilitated conversations with faculty about writing in the disciplines as part of ongoing tutor development in the Writing Center.

**Faculty Learning Community.** Ten participants joined us for a year-long learning community focused on teaching with writing and designing writing assignments.

In 2019, WAC and partners won a Curriculum Impact grant to develop resources and programming to support the teaching of writing across campus. Our work will be shared through upcoming workshops and on the WAC website, wac.gmu.edu.

## The University Writing Center

The University Writing Center supports writers at George Mason University through one-to-one consultations at any stage of the writing process, from brainstorming to the final phases of polishing. In these consultations, writers can try out ideas and approaches with a well-trained tutorial staff comprised of attentive readers and listeners from a variety of disciplines. We help writers develop the strategies and knowledge that make them stronger writers in the long term. We believe that achieving a strong piece of writing takes time, multiple drafts, and revision, and that the best feedback comes from tutors who listen and ask questions in order to foster a writer's own curiosity. Writers can expect to leave a consultation with thoughtful feedback to consider, an array of writing strategies to use, and a plan for further developing or revising their project. We work with writers from all backgrounds: experienced and beginning writers; undergraduate and graduate students; native English speakers and multilingual writers; and writers from all disciplines, departments, and professions. We strive to create a space where writers of all genders, races, ethnicities, nationalities, sexualities, ages, abilities, and religions feel welcome.

### The Writing Center Supports the Mason Core

This report details University Writing Center support for the Mason Core from fall 2017 through fall 2019. During this time, 54% of the center's sessions with undergraduates were with writers who brought projects from Mason Core courses.

### Individual Writing Consultations

The Writing Center supports student writers mainly through one-on-one writing consultations. When students' writing tasks include interaction, such as conversation and feedback from a peer, and meaning-making, such as synthesis, analysis, or argument, those tasks correlate more strongly to higher order and integrative learning (Anderson et al., 2015). This finding is borne out locally in findings from Mason's Graduating Senior Survey: students who visited the Writing Center valued their courses in their major more highly, perceiving that these courses better contributed to their competence in connecting concepts across disciplines and in writing, conducting research, and managing information in their field.[15]

Visiting the Writing Center, students bring projects at any phase of the writing process to get feedback and acquire strategies for brainstorming, organizing, drafting, revising, and editing. Sessions are 45 minutes long, and the session agendas are driven by student writers. Students may book in-person or online sessions offered on synchronous and asynchronous platforms.

[15] George Mason University 2014 Graduating Senior Survey

From fall 2017 through fall 2019, the Writing Center held 6,302 individual consultations with writers bringing projects from Mason Core courses.[16] These were 54% of 11,592 sessions held with undergraduate writers during this period and 34% of all sessions (18,625).

**Workshops**

The Writing Center offers workshops for classes when invited by faculty. These workshops provide students with skills for engaging in peer review and strategies for writing as well as offering faculty and students a common language for talking about writing in the course and in the discipline. During this period Writing Center tutors conducted 98 workshops for 14 different courses in the Mason Core.

**Online Resources**

The Writing Center offers online resources including quick guides and videos, many of which are designed to support undergraduates in composition or other writing-intensive courses. These resources focus on specific genres of writing, stages of the writing process, or challenges such as using and citing sources. The Writing Center website receives up to 800,000 hits each year. Some of these are likely to come from Mason students seeking resources for writing in Core courses.

[16] These figures almost certainly represent an undercount. One reason is that students sometimes enter course identifiers using a program descriptor or number only, preventing us from coding the course. Another is that course data is not collected on the 11% of sessions held with students in the ESL and DS Opt-in programs. These appointments are booked by Writing Center administrators for the students at the beginning of the term, so those students do not fill out the appointment forms that elicit course information.

# Conclusions

This assessment focused on addressing two substantive questions: To what extent are students achieving the general education (Mason Core) learning outcomes; and how well are Mason Core courses designed to help students to achieve the learning outcomes? In some areas, the assessment was part of an ongoing conversation about teaching and learning; this particular project provided resources and energy so that faculty could extend the conversation and make progress towards their goals. For others, engaging in different aspects of the assessment process started or helped focus a conversation. For the Mason Core leadership, the assessment project helped us see the Mason Core in new ways and contributed to a more complex understanding of what is happening in classrooms. Above all, the commitment that Mason Core faculty make to students through their thoughtful courses and assignments was evident in so much of what we read over the past three years.

A few observations and conclusions upon completion of this intensive three-year assessment project:

## Areas of Strength

The Mason Core offers a breadth of courses, topics, and experiences for students. Students have the opportunity to participate in musical performances, engage in hands-on fieldwork and lab experiments, learn interpersonal skills, and read current texts. There much more writing across subjects than is commonly believed to be.

The institution's attention to written communication is evidenced through the two-part English Composition series and the required Writing in the Major (WI) courses. Student services such as the Writing Center and the academic support center at INTO Mason provide support for writing beyond classroom instruction. The unique needs of multilingual learners are a current focus for collaboration across the university.

The first-year Communication program offers an evidence-based curriculum with a focus on continuous improvement. The program has the distinction of a national disciplinary award for excellence. The focus on faculty development and training supports high expectations for instruction, with ongoing research on student success using different instructional models.

Critical thinking scores seem to be improving over time, perhaps suggesting that efforts out of the Stearns Center and (now defunct) Critical Thinking Across the Curriculum collaborative have made a positive impact. Many returning faculty have reported using the Critical Thinking VALUE rubric to develop course materials and to guide instruction.

Where comparisons with national data can be made, Mason students' performance follows similar patterns to their peers.

In general, it appears that Honors students tend to perform better on entry intellectual skills such as deep reading, writing, and critical thinking, but not necessarily on learning outcomes in exploration or integration.

Where they exist, differences in performance by gender or race appear to be generally small. For seniors, analysis for written communication performance showed that academic major mediated many of these differences.

## Alignment of Learning Outcomes

While Mason Core courses themselves were not the focus of this assessment, the assessment method allows us to see patterns in the nature and content of classroom learning activities and assignments. This view provides some information about how well the courses are aligned with the Mason Core learning outcomes.

There appears to be strong alignment of learning outcomes and course design for the categories in which:

- Courses are mostly in one discipline (i.e. English Composition, Oral Communication, Western Civilization/World History) or related disciplines (e.g. Literature—English, Classics, and Philosophy);
- Disciplinary experts have defined the category's learning outcomes and built the full curriculum; and
- Courses have been created specifically for the Mason Core using the learning outcomes (e.g. CLIM 101), and not as prerequisites for upper-division courses in the discipline or field (e.g. CHEM 211/212).

Courses in Mason Core categories that span multiple disciplines (e.g. Global Understanding, Arts, Natural Sciences) show evidence of loose alignment to learning outcomes. In these cases, the learning outcomes are broad and may be more likely to represent ways of knowing or habits of mind rather than tangible, measurable learning outcomes. Thus, it may appear that the courses in these categories are misaligned with the intent of the Mason Core while they may be otherwise excellent courses.

## Using a Common Rubric

This assessment allowed us to get closer than ever before to understanding student achievement in the Mason Core; however, caution should be taken in the interpretation of the results. For a large-scale assessment using common rubrics, it is important to validate the instruments, train reviewers, use representative student work, and triangulate results. For this assessment, we used both validated instruments (VALUE rubrics) and locally-developed rubrics. Use of VALUE rubrics allowed us to be confident in our use of the rubrics across work

products, and to benchmark with national results for 4-year institutions. Locally developed rubrics that had been validated (e.g. COMM 101 assessment) could also be used with a high level of confidence. As this was the first time that the locally-developed rubrics had ever been used at this scale, this was essentially a pilot period leading to the validation of those rubrics. Thus, future refinement and testing of these rubrics are warranted.

In general, we can have confidence in rubrics that assessed performance of skills across disciplines and work samples (e.g. Written Communication, Critical Thinking, Western Civilization/World History). It is also important to note that for a general education assessment, written work is the easiest to align with these rubrics. We have less confidence in rubrics that assessed outcomes that were not evident in writing samples, or that explicated outcomes that were more about ways of knowing or understanding (e.g. Information Technology and Arts, respectively). In these cases (noted in the Limitations sections of each category report), the learning outcomes and/or the assessment methods should be reconsidered.

## Observations about Student Achievement

In consideration of all of the kinds of student work and performance of the outcomes, I offer the following observations:

- Differences in academic performance by gender and race, however small, exist in several areas. However, the differences appear to be in the choice of major and not within the major itself. One need not read too much into the scholarly literature about the subject to understand that college majors tend to follow certain patterns concerning gender and race. Thus, while this may also be the case at Mason, the institution should continually examine enrollment disparities, the reasons they exist, and the impact on student achievement.
- It appears that student success in STEM disciplines may be constrained for certain demographic groups (i.e. women, African American students, and Latinx students). These students are particularly under-enrolled in Calculus and in majors that require Calculus and higher-level math, such as Physics and Computer Science.
- Mason faculty and administrators should be concerned about the large numbers of low rubric scores for student writing in the major, including critical thinking—the two of which are intertwined, intellectually.
- Overall, this assessment suggests that students in year 2 and transfer students may need additional support for intellectual skill-building.
- While not specifically analyzed for this report, course size may be a factor for student achievement; educational research suggests that it is critical that enrollments be limited to no more than 20-25 students in courses for which intellectual skill-building and integrative learning are emphasized.

## Future Directions for Mason Core Assessment

In all, this should be considered a successful assessment of student learning in the Mason Core. This project engaged large numbers of faculty across disciplines in conversations about what they wanted for students and how to better align instruction with those goals. The Mason Core assessment process created spaces for faculty to talk with their peers across the institution about what they teach, what they intend for students to learn, and how to make better connections with other courses and programs.

Given the lessons learned in this project, best practices in the field, and external requirements for assessment, the following recommendations are made:

**1. Learning Outcomes Development**

For two Mason Core categories—Oral Communication and Quantitative Reasoning—learning outcomes are well defined for introductory courses, but do not provide guidance for skills development through the college years. Given the SCHEV requirement for assessment of student achievement at the senior level for both of these areas, it is essential that learning outcomes be defined through the capstone level. Assessment strategies should be developed that map these outcomes in the curriculum and extend instruction as needed.

**2. Collaborative Project-Based Learning**

Most methods for learning outcomes assessment are designed for individual learners. In today's universities, collaborative learning is emphasized, especially for capstone experiences in the majors. While teamwork outcomes (e.g. communication, collaboration, etc.) are often assessed by teaching faculty, we are often at a loss to understand how students develop intellectual abilities in a collaborative setting. If we are to adequately assess student learning across the university, it will be essential to work with faculty in collaborative disciplines such as Business, Engineering, and the Performing Arts to define outcomes for teamwork and collaborative project-based learning, as well as identify appropriate assessment tools and methods.

**3. Capstone Courses Clarified**

When Mason adopted the Capstone requirement in 2017, the Mason Core Committee chose not to define institutional outcomes for Capstone courses. Rather, academic units were expected to define specific outcomes for their majors but received little guidance on how to do so. Given the substantial scholarship on Capstones as a high impact practice,[17] it seems that the Mason Core could set expectations for the Capstone course experience that would be inclusive of all majors. The Committee should consider the work of AAC&U in the areas of Integrative Learning, Teamwork, and Inquiry (i.e. RS courses).

[17] https://www.aacu.org/node/4084

**4. Professional Development for Faculty**

As in the McConnell & Rhodes (2017) study, the Mason Core assessment results emphasize the importance of course assignments in helping students achieve the levels of learning that they want for their students. The small amount of professional development that faculty received through the Mason Core assessment project made an impact on the quality of course syllabi and assignment design. Faculty who had the opportunity to work with others, especially across disciplines, reported that they valued the experience. This kind of collaborative planning for academic programs and peer support for faculty members' teaching can lead to more sustainable practices and to improved student success.

# Appendix A: Mason Core Assessment Plan AY17-20

**George Mason University**
**Mason Core Assessment Plan**
**Academic Years 2017-2020**

**Purpose**

Assessment is the systematic process of collecting, evaluating, and using information to determine if and how well performance matches learning or service expectations. The purpose of assessment is to use the results to inform meaningful dialogue and decision-making about how the university can improve its programs and services to support student success and institutional effectiveness.

At Mason, assessment of academic programs is the responsibility of faculty, and is administered by professional staff in the Provost's office. Mason's assessment efforts are guided by the belief that student learning is enhanced in classrooms in which instructors use best practices for collegiate teaching and learning. As such, a partnership with Mason's Stearns Center for Teaching and Learning facilitates faculty development activities to encourage best practices in curriculum development, student learning outcomes, assignment design, and learning assessment.

The Mason Core comprises the general education courses and experiences for degree-seeking undergraduate students at George Mason University. The academic program is a distributed menu model that categorizes courses of study into three main areas. **Foundation** courses build knowledge and skills to promote success in the major and in future pursuits; **exploration** courses introduce students to a breadth of subject matter and intellectual traditions; and **integration** courses encourage the integration of past learning and experiences, develop critical thinking skills, and prepare students for lifelong learning. Student learning outcomes for the Mason Core areas are created and assessed by faculty representatives of the University Mason Core Committee (see Appendix A).

This document outlines the plan for assessment of student achievement of the Mason Core learning outcomes for the period of Spring 2017 through Summer 2020. Results will be used internally to inform curriculum innovation initiatives and faculty development efforts for the improvement of student learning. Results will also be reported to the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC), specialized accrediting agencies, and the State Council of Higher Education for Virginia (SCHEV) to meet external reporting requirements (see Appendix B). The assessment plan and timeline are intended to complete an assessment cycle to meet external reporting deadlines (see Reporting section below).

**Previous Assessment of the Mason Core**

Between 2008 and 2016, the Mason Core program was assessed using faculty-prepared course portfolios. During each assessment period, a list of courses and faculty were randomly selected from all of the Mason Core courses in the designated category. Faculty participated in a pre-semester workshop to learn about student learning outcomes, assignment design, and expectations for the portfolio. Faculty were provided with online resources and one-on-one assistance as requested. At the end of the semester, each participating faculty member submitted a course portfolio that included: course syllabus, course map with assignments mapped to learning outcomes, selected assignment instructions

or exams, samples of student work from a randomly selected list of students, and a narrative responding to prepared prompts.

The course portfolio review has been conducted by members of the Mason Core Committee, and by peer faculty reviewers who have been paid a small stipend. The review focused on how well each course addressed the Mason Core student learning outcomes through instruction, assignments/activities, and samples of student work. Portfolios have been assessed on how well the instructors articulated the learning outcomes, the congruence of the learning outcomes with the course content, the appropriateness of the course material for the Mason Core curriculum, and the appropriateness of the assignments or forms of assessment in relation to the learning outcomes. Results were shared with course faculty, department chairs, and the Mason Core Committee. Results are available at http://masoncore.gmu.edu/assessment/.

Exploration and Foundation courses have been assessed on a six-year cycle, and each area has been assessed at least once since 2008. Mason Core courses at Mason's Korea campus were assessed during three semesters: spring 2014, fall 2014, and spring 2015. Results are available at http://masoncore.gmu.edu/assessment/.

**Assessment Plan and Timeline**

Between fall 2017 and fall 2019, a complete assessment cycle will be conducted for all of the Mason Core categories. The assessment will include all Mason Core courses taught on all of Mason's campuses (Fairfax, Arlington, Mason Korea, and Science and Technology), and Mason Core courses taught both face-to-face and online. Two categories, Written Communication and Oral Communication, completed large-scale, comprehensive learning outcomes assessments during AYs 2016-2017; these results will be shared using the new reporting template. Two or three Mason Core categories will participate each semester (see Schedule).

*Course Portfolios*

This assessment cycle will have three main emphases: assistance to faculty with assignment design to support Mason Core student learning outcomes, direct assessment of student work, and use of results for improvement. To accomplish these aims, Mason Core faculty will be expected to:

1. participate in a pre-assessment workshop in the week preceding, or just after the start of the assessment semester, to focus on
    a. student learning outcomes and syllabus messaging,
    b. assignment design, and
    c. student learning assessment;
2. prepare a course portfolio due at the end of the assessment semester, to include
    a. course syllabus that messages to students how the course assignments align to the learning outcomes,
    b. one assignment that clearly demonstrates at least one of the Mason Core learning outcomes, and
    c. randomly selected student work using the identified assignment;
3. participate in a post-assessment meeting in the following semester that will focus on individual and aggregate results of the assessment, and use of results to promote improvement.

All Mason Core faculty in the targeted assessment semester will submit a course portfolio at the end of the semester, as defined above. Faculty who participate in all three activities listed above will be eligible to receive professional development funds from the Provost's office following completion of the post-assessment meeting.

*Student Survey*

In addition to the course portfolio, all students enrolled in the Mason Core category being assessed will receive a brief survey at the end of the semester to rate their own learning on the student learning outcomes. This indirect measure will serve as triangulation for the direct measures, and provide important information to course faculty.

*Faculty Survey*

Mason Core faculty will be surveyed two semesters following their assessment semester. The purpose of the survey will be to learn how faculty have used the assessment results to improve course design, assignment design, or student learning assessment in their courses. The two-semester period is necessary to provide enough time between the experience and feedback from reviewers to be able to implement changes in their Mason Core courses. The faculty survey results will be used in the overall program assessment.

*Peer Review of Course Portfolios*

Course portfolios will be reviewed by peers, to include Mason Core committee faculty, and faculty who teach Mason Core courses. Reviewers will use one rubric to evaluate the course syllabus for demonstration of student learning outcomes, the appropriateness of the course material for the Mason Core curriculum, and the appropriateness of the assignments or forms of assessment in relation to the learning outcomes. Reviewers will use a second rubric to assess student learning on the identified outcome(s). Reviews will take place in January and June 2018, and January and June 2019 (see Schedule).

*Timeline*

| | |
|---|---|
| **Planning**<br>• Communication plan<br>• Meet with key faculty, course coordinators, and department chairs<br>• Develop pre-assessment workshop<br>• Develop rubrics and reporting template<br>• Develop faculty resources and materials<br>• Create system for submitting portfolios<br>• SCHEV Assessment Plan | Spring and Summer 2017<br><br>Due TBD |
| **Assessment Period** (see Schedule) | Fall 2017-Fall 2019 |
| **Analysis and Reporting**<br>• Prepare Mason Core program assessment report to include<br>  ○ Course portfolio results<br>  ○ Mason Core student survey results<br>  ○ Graduating Senior Survey results (plus comments analysis)<br>  ○ Relevant NSSE results<br>  ○ Mason Core faculty survey results<br>  ○ Course-specific data: Grades, DFW rates, enrollment, faculty<br>  ○ Student assessment data disaggregated by group (see SCHEV)<br>• Prepare SCHEV reports as required (SCHEV reporting template)<br>• Prepare SACSCOC report (Principle 3.3.1.x) | Fall 2019-Spring 2020<br><br>Due September 2020 |
| **Reflection and Re-Development**<br>• Series of meetings with faculty and Mason Core committee<br>• Map curricular changes<br>• New/revised assessment plan developed around new needs and priorities | Spring and Summer 2020 |
| **Pilot/Launch New/Revised Assessment Plan** | Fall 2020 |

## Reporting

*Internal Reporting Schedule and Use of Results*

A reporting template will be developed for sharing aggregated assessment results with the university community (to be posted at http://masoncore.gmu.edu/assessment/). The meeting will focus on areas for improvement that were identified in the peer review, and provide resources for faculty to address critical areas. Faculty will be encouraged to participate in faculty development activities through the Stearns Center for Teaching and Learning.

*External Reporting Schedule*

- September 2021: SACSCOC Compliance Certification Report for reaffirmation of accreditation due to SACSCOC
- June 2018: SCHEV Assessment Plan due
- TBD (every three years, possibly Fall 2021, Fall 2024): SCHEV Assessment Reports due
- Varies: Specialized accreditation organizations

**People**

The Associate Director for Undergraduate Education will implement the assessment plan, in partnership with the Stearns Center, the Mason Core committee, and Mason Core teaching faculty. *The Stearns Center* will share in the planning and implementation of the faculty pre-assessment workshops, and will promote its faculty development activities for interested Mason Core faculty. *Mason Core committee members* will participate in the pre-assessment workshops, peer review of portfolios, and post-assessment meetings with faculty. *Faculty teaching Mason Core courses* will prepare course portfolios, and will be invited to serve as peer reviewers.

A *planning committee* for each of the cohorts will be convened in the planning semesters. Each committee will be composed of course coordinators and key faculty who regularly teach or plan for the Mason Core courses in their area, and a representative from the Mason Core Committee. The committee will assist with the planning in their areas, select and develop rubrics, and provide important disciplinary guidance for the assessment.

**Communication Plan**

- Letter from the Provost's office to all units that offer Mason Core courses
- Public announcements on Mason News, etc.
- Presentations each semester to: Assessment Council, Undergraduate Council, CUE
- Mason Core Website
    - Assessment Plan
    - Schedule and course lists
    - Resources
    - FAQ
    - Assessment results (when available)
- Direct letters to Mason Core teaching faculty in semester preceding assessment

# Appendix B: Mason Core Assessment Schedule, AY18-20

| | Summer 2017 | Fall 2017 | Spring 2018 | Summer 2018 | Fall 2018 | Spring 2019 | Summer 2019 | Fall 2019 | Spring 2020 |
|---|---|---|---|---|---|---|---|---|---|
| Written Communication | Review/ Results | | | | Portfolios | Review/ Results | | | |
| Oral Communication | Review/ Results | | | | | | | | |
| Global Understanding | Planning | Portfolios | Review/ Results | | | | | | |
| Western Civilization/World History | Planning | Portfolios | Review/ Results | | | | | | |
| Writing Intensive | | Planning | Portfolios | | Review/ Results | | | | |
| Critical Thinking (Synthesis/Capstone) | | Planning | Portfolios | | Review/ Results | | | | |
| Arts | | | Planning | Planning | Portfolios | Review/ Results | | | |
| Literature | | | Planning | Planning | Portfolios | Review/ Results | | | |
| Social and Behavioral Science | | | Planning | Planning | Portfolios | Review/ Results | | | |
| Quantitative Reasoning | | | | | Planning | Portfolios | | | Review/ Results |
| Information Technology | | | | | Planning | Portfolios | | | Review/ Results |
| Natural Sciences | | | | | | Planning | | Portfolios | Review/ Results |
| Mason Core at Mason Korea | | | Planning | Planning | Portfolios | | | | Review/ Results |
| Honors Core Curriculum | | | Planning | Planning | Portfolios | Portfolios | | | Review/ Results |

# Appendix C: External Reporting Requirements

**Southern Association of Colleges and Schools Commission on Colleges (SACSCOC)**

As the institution's accreditor, SACSCOC requires "the institution identifies college-level general education competencies and the extent to which students have attained them" (Principle 8.2.b).[18] This principle requires the institution to define competencies for its general education program and identify measures used to determine student achievement of those competencies. SACSCOC instructs institutions of higher education to use assessment results to guide decision-making about programs and services, and to demonstrate evidence-based improvement.

**State Council of Higher Education for Virginia (SCHEV)**

The Code of Virginia § 23.1-203 requires SCHEV to work with higher education institutions in the state to develop guidelines and strategies for assessment of student achievement, and to publicly report the results for use in state-level strategic planning. In 2017, SCHEV adopted a new assessment policy.[19] The policy requires the assessment of six competencies, defined by SCHEV, to include:

1. Critical thinking
2. Written communication
3. Quantitative reasoning
4. Civic engagement
5. Competency area to be selected in accordance with institutional priorities for student learning and development
6. Competency area to be selected in accordance with institutional priorities for student learning and development

The policy requires the development and application of at least one learning outcome per area, to be assessed using direct measures (i.e. the review of student work or performance). In this regard, the policy states:

> *Assessment of the six competencies may be done at the level of general education, disciplinary and interdisciplinary majors, curricular and co-curricular programs, or a combination of these, depending on the needs and priorities of the institution and the particular outcome being assessed. Assessment strategies may include methods that generate quantitative data, qualitative data, or both. Indirect methods (such as surveys*

[18] SACSCOC. (2017). *Principles of Accreditation: Foundation for Quality Enhancement.* Retrieved from https://sacscoc.org/accrediting-standards/

[19] SCHEV Policy on Student Learning Assessment and Quality in Undergraduate Education, Approved July 18, 2017

*and student self-reports of achievement) and logical inferences may be used as a complement to the direct assessments described above (page 6).*

The policy provides a reporting template that outlines required achievement data to be disaggregated by student "characteristics used to define underrepresented populations" (page 6).

**Specialized Accrediting Agencies**

Many of Mason's degree programs have earned accreditation through specialized or professional accrediting agencies (e.g. ABET, AACSB, NCATE). The responsibility for assessment and reporting of student achievement for specialized accreditation lies with the program or college maintaining accreditation. Assessment for Mason Core can be used to support specialized accreditations, and relevant data and results generated by this assessment process will be shared with programs for their use in reporting to their accreditors.

# Appendix D: Assessment Rubrics

# Appendix E: References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