General Education Assessment Plan

(AY 2021-22 to AY 2023-24)

Prepared by: Office of Academic Effectiveness

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Table of Contents

Introduction ............................................................................................................................................ 4
Overview of Assessment of the General Education Program................................................................. 6
Frequency and Timeline of General Education Assessment................................................................... 7
Assessment and Data Collection Timeline by Core Areas................................................................... 8
Assessment Plan ..................................................................................................................................... 9

Communication (Core Area A1) Outcome: ......................................................................................... 9
  Appropriate Methods/Measures .................................................................................................... 9
  Courses that contribute to Communication ............................................................................... 9
  Who assesses student performance? ......................................................................................... 9
  Measures and Targets ................................................................................................................. 9
    Direct Assessment .................................................................................................................. 10
    Indirect Assessment .............................................................................................................. 11

Quantitative (Core Area A2) Outcome: ............................................................................................ 11
  Appropriate Methods/Measures .................................................................................................. 12
  Courses that contribute to Quantitative ability ........................................................................ 12
  Who assesses student performance? ....................................................................................... 12
  Measures and Targets ............................................................................................................... 12
    Direct Assessment ................................................................................................................. 12
    Indirect Assessment .............................................................................................................. 12

Computing (Core Area B) Outcome: ................................................................................................. 13
  Appropriate Methods/Measures .................................................................................................. 13
  Courses that contribute to the Institutional Option (Computing) ......................................... 13
  Who assesses student performance? ....................................................................................... 13
  Measures and Targets ............................................................................................................... 13
    Direct Assessment ................................................................................................................. 13
    Indirect Assessment .............................................................................................................. 14

Humanities, Fine Arts, and Ethics (Core Area C) Outcome: .............................................................. 14
  Appropriate Methods/Measures .................................................................................................. 14
  Courses that contribute to Humanities, Fine Arts, and Ethics .................................................. 14
  Who assesses student performance? ....................................................................................... 15
  Measures and Targets ............................................................................................................... 15
    Direct Assessment ................................................................................................................. 15
    Indirect Assessment .............................................................................................................. 18

Natural Sciences, Math, and Technology (Core Area D) Outcome: .................................................. 18
  Appropriate Methods/Measures .................................................................................................. 18
Courses that contribute to Natural Sciences, Math, and Technology ....................... 18
Who assesses student performance? .......................................................................... 19
Course instructors will assess and collect student performance information according to
the timeline and identified projects, papers, or questions. .............................................. 19
Measures and Targets .................................................................................................. 19
Direct Assessment ......................................................................................................... 19
Indirect Assessment ...................................................................................................... 21
Social Sciences (Core Area E) Outcome: ................................................................. 21
Appropriate Methods/Measures ....................................................................................... 21
Courses that contribute to the Social Sciences ............................................................. 21
Who assesses student performance? .......................................................................... 21
Course instructors will assess and collect student performance information according to
the timeline and identified projects, papers, or questions. .............................................. 21
Measures and Targets .................................................................................................. 21
Direct Assessment ......................................................................................................... 21
Indirect Assessment ...................................................................................................... 27
Analysis ............................................................................................................................ 27
Actions and Follow-Up .................................................................................................. 27
Conclusion ...................................................................................................................... 28
Appendix A ..................................................................................................................... 29
Key Personnel for Each Outcome ................................................................................... 29
Communication Outcome: ............................................................................................ 29
Quantitative Outcome: ................................................................................................. 29
Computing Outcome: .................................................................................................. 30
Humanities, Fine Arts, and Ethics Outcome: ............................................................... 30
Natural Sciences, Math, and Technology Outcome: ................................................... 31
Social Sciences Outcome: ............................................................................................. 31
General Education Assessment Plan

Introduction
An integral part of the delivery of General Education (Gen Ed) at Georgia Institute of Technology (Georgia Tech) includes the assessment of the learning outcomes. The learning outcomes were approved by the Undergraduate Curriculum Committee at Georgia Tech and by the University System of Georgia’s (USG) Council on General Education in April 2011:

- **Communication (Core Area A1)**
  
  **Outcome:** Student will demonstrate proficiency in the process of articulating and organizing rhetorical arguments in written, oral, visual, and nonverbal modes, using concrete support and conventional language.

- **Quantitative (Core Area A2)**
  
  **Outcome:** Student will demonstrate the ability to apply basic elements of differential and integral calculus to solve relevant problems.

- **Computing (Institutional Options B)**
  
  **Outcome:** Student will be able to develop algorithms and implement them using an appropriate computer language and will understand algorithmic complexity and reasonable versus unreasonable algorithms.

- **Humanities, Fine Arts, and Ethics (Core Area C)**
  
  **Outcome:** Student will be able to describe relationships among languages, philosophies, cultures, literature, ethics, or the arts.

- **Natural Sciences, Math, and Technology (Core Area D)**
  
  **Outcome:** Student will be able to demonstrate the ability to obtain, analyze, interpret, and criticize qualitative observations and quantitative measurements to explain natural phenomena and to test hypotheses.

- **Social Sciences (Core Area E)**
  
  **Outcome:** Student will demonstrate the ability to describe the social, political, and economic forces that influence social behavior.

For a course to be included in Georgia Tech’s Gen Ed, it must align with the appropriate learning outcome in the Gen Ed proposal process. Courses proposed to be included in Gen Ed undergo approval processes through the Institute’s Undergraduate Curriculum Committee, the Vice Provost for Undergraduate Education, the Faculty Senate, and the USG’s Council on General Education.

The 3-Year Georgia Tech Gen Ed Assessment Plan (2021-2024) sets the framework for good practice in course delivery and assessment, capitalizing on the good judgement of faculty members regarding students’ levels of attainment of the Gen Ed learning outcomes. Faculty develop signature assignments in their Gen Ed courses, and the assignment, along with student performance, is collected for review and analysis at the end of each semester of the
3-Year Assessment Plan. These direct measures of student learning via faculty identified signature assignments are at the heart of the Gen Ed Assessment Plan.

Complementing the direct measures will be indirect measures that involve student perceptions of their learning. One indirect measure will be the National Survey of Student Engagement (NSSE). Georgia Tech has participated in the NSSE every three years since 2000 as required by the USG. The survey is administered to all first-year students and seniors. Some NSSE questions align well with Georgia Tech’s Gen Ed learning outcomes. Georgia Tech plans to use the NSSE results from the 2020 and 2023 administrations as our benchmarks and to inform our level of expected attainment. Longitudinal trends of the results will be monitored over time, compared against our previous benchmarks, and will be triangulated with assessment information from our direct measures.

The second indirect measure will be the Georgia Tech Exit Survey given to graduating seniors. The Institute has been gathering information about students’ experiences for more than fifteen years. Specifically, the last form of the survey specifically addresses the Gen Ed learning outcomes, and results will be aligned accordingly.

This Gen Ed Assessment Plan aims to develop a sustainable assessment structure and timeline for Georgia Tech’s Gen Ed learning outcomes. Nurtured by the Subcommittee on Gen Ed and Policy, this plan outlines the learning outcomes, signature assignments and student results, targets for performance, and faculty reporting to the Office of Academic Effectiveness. Taken together, the results will be shared with the Subcommittee on Gen Ed and Policy. Using the assessment results, the Subcommittee, along with other stakeholders, consider opportunities for improvement for students’ attainment of the Gen Ed learning outcomes.
Overview of Assessment of the General Education Program

The Institute’s approach to meaningful outcomes assessment consists of the following five steps: (1) Specify expected outcomes that are aligned with program goals, strategic priorities, and the Institute’s mission, (2) Identify appropriate measures (i.e., direct/indirect where appropriate) to assess the outcome, (3) Establish acceptable targets for performance, (4) Collect, analyze, review and report results, (5) Use results to improve the outcome.

In 2020, Georgia Tech began an intensive review of the Gen Ed learning outcomes and how students demonstrate their learning in these areas.

To better understand how students experience Gen Ed at Georgia Tech, the Office of Academic Effectiveness examined enrollment patterns for students taking courses in Gen Ed for the last five years. Patterns were determined, too, by class size (large class-more than 150 students; middle class- more than 50 students but less than 100 students; small class- more than 20 students but less than 50 students). This exercise led to the value that all class sizes would be included in the 3-year Gen Ed Assessment Plan, as well as coverage of each discipline that contributes to Gen Ed.

The Office of Academic Effectiveness worked with Course Coordinators or Instructors to understand how students demonstrate Gen Ed learning outcomes in their courses. Careful attention to signature assignments and their alignment to the appropriate learning outcome was taken. In addition, key personnel for courses also provided acceptable targets for performance. The Office of Academic Effectiveness collaborates with key personnel to develop efficient ways to collect direct student performance information.
Frequency and Timeline of General Education Assessment

The table below outlines the general timeline for the next three academic years. As a three-year Gen Ed Assessment Plan, Georgia Tech will continuously move through essential steps for meaningful assessment of Gen Ed learning outcomes.

<table>
<thead>
<tr>
<th>Fa20-Sp21</th>
<th>Fa21-Sp22</th>
<th>Fa22-Sp23</th>
<th>Fa23-Sp24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrollment Analysis, Planning &amp; Outcome Alignment</td>
<td>Planning</td>
<td>Planning</td>
<td>Planning</td>
</tr>
<tr>
<td>Assessing</td>
<td>Assessing</td>
<td>Assessing</td>
<td>Reporting</td>
</tr>
<tr>
<td>Reporting</td>
<td>Reporting</td>
<td>Reporting</td>
<td>Improving</td>
</tr>
<tr>
<td>Improving</td>
<td>Improving</td>
<td>Improving</td>
<td></td>
</tr>
</tbody>
</table>

The next table schedules assessment activity and presents the data collection timeline to ensure that assessment will focus on each Core Area of Georgia Tech’s Gen Ed by Spring 2024. Further, the table ensures that each discipline contributing to Gen Ed is included in the assessment plan. The Office of Academic Effectiveness will collect student performance data related to each learning outcome from the course instructors or course coordinators for further analysis.
## Assessment and Data Collection Timeline by Core Areas

<table>
<thead>
<tr>
<th>Fall 2021</th>
<th>Spring 2022</th>
<th>Fall 2022</th>
<th>Fall 2023</th>
<th>Spring 2023</th>
<th>Fall 2023</th>
<th>Spring 2024</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computing (B)</td>
<td>Quantitative (A1)</td>
<td>Natural Sciences, Math, and Technology (D)</td>
<td>Social Sciences (E)</td>
<td>Computing (B)</td>
<td>Quantitative (A2)</td>
<td></td>
</tr>
<tr>
<td>CS1301 Introduction to Computing (In-Person)</td>
<td>MATH 1152 Integral Calculus</td>
<td>CHEM 1310 General Chemistry</td>
<td>ECON 2100 Economic Analysis and Policy Problems</td>
<td>CS1301 Introduction to Computing</td>
<td>MATH 1552 Integral Calculus</td>
<td></td>
</tr>
<tr>
<td>CS1315 Introduction to Media Computation</td>
<td>MATH 1712 Survey of Calculus</td>
<td>BIOS 1107L Biological Principles Laboratory</td>
<td>HIST 2311 The United States to 1877</td>
<td>CS1315 Introduction to Media Computation</td>
<td>MATH 1712 Survey of Calculus</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>BIOS 1600 Introduction to Environmental Science</td>
<td>HIST 2112 The United States since 1877</td>
<td>CS1371 Computing for Engineers</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Humanities, Fine Arts, and Ethics (C)</strong></td>
<td>Communication (A1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 1101 English Composition I**</td>
<td>PHYS 2212 Introductory Physics II</td>
<td>MATH 1554 Linear Algebra</td>
<td>PSYC 1101 General Psychology</td>
<td><strong>Humanities, Fine Arts, and Ethics (C)</strong></td>
<td>ENGL 1101 English Composition I**</td>
<td></td>
</tr>
<tr>
<td>ID 2241* History of Art 1</td>
<td>MATH 1711 Finite Mathematics</td>
<td>PSYC 2210 Social Psychology</td>
<td>ID 2241* History of Art 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARCH 2111* History of Arch 1</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>LMC 2100* Introduction to Science, Technology and Culture</td>
<td>CS1301 Introduction to Computing (Online)</td>
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<tr>
<td>PHIL 1476* Environmental Ethics</td>
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<td></td>
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<tr>
<td>PHIL 3109* Engineering Ethics</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FREN 1002 Elementary French II</td>
<td>CP 4020E Introduction to Urban and Regional Planning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ID 2202 History of Modern Industrial Design</td>
<td>INTA 1200 American Government in Comparative Perspective</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPAN 2001 Intermediate Spanish I</td>
<td>INTA 2030* Ethics in International Affairs</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>LMC 3226 Major Authors I</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>ML 2500 Think Globally, Act Locally: An Introduction to Cross-Cultural Studies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHIN 2001 Intermediate Chinese I</td>
<td></td>
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</tr>
</tbody>
</table>

**Classes taught in Fall**  
**Student performance data collected in Fall but assessed in Spring**

*Classes taught in Fall**  
*Classes taught in Fall**

**Student performance data collected in Fall but assessed in Spring**
Assessment Plan
To encourage a more comprehensive and accurate assessment of student performance, Georgia Tech will use both direct and indirect methods to assess general education learning outcomes. However, the majority of assessment activity relies on direct methods that are embedded across Gen Ed courses. The direct methods are measures that are tangible, visible, self-explanatory, and provide compelling evidence of exactly what students have learned. The strength of direct measures is that they require students to demonstrate what they have learned in a way that is observable and measurable, such as capstone projects, portfolios, test questions, written work, and presentations. The following components are included for each Core Area outcome’s assessment plan: Expected Outcome, Appropriate Methods/Measures (Direct and Indirect), and Targets. Key personnel is identified for each Gen Ed outcome in Appendix A.

Communication (Core Area A1) Outcome:
Student will demonstrate proficiency in the process of articulating and organizing rhetorical arguments in written, oral, visual, and nonverbal modes, using concrete support and conventional language.

Appropriate Methods/Measures

Courses that contribute to Communication

<table>
<thead>
<tr>
<th>Course ID</th>
<th>Course Name</th>
<th>Class Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 1101</td>
<td>English Composition I</td>
<td>Large (&gt;150 students)</td>
</tr>
<tr>
<td>ENGL 1102</td>
<td>English Composition II</td>
<td>Large (&gt;150 students)</td>
</tr>
</tbody>
</table>

ENGL 1101 and ENGL1102 are taught at Georgia Tech to enhance students communication skills for all majors. From these two courses, every student composes an electronic portfolio by the end of the semester. Because composing in multiple modes is a central aim of the outcome, student portfolios are likely to include final and process documents of podcasts, videos, posters, and presentations. The reflective essay in each student’s portfolio is an artifact in which students will reflect on all their course learning experiences from various modes.

Who assesses student performance?
Georgia Tech’s Writing and Communication Program (WCP) instructors meet six times over the academic year and assess sets of student portfolios. In WCP, instructors calibrate their scores by discussing the assignments and the quality of student work using a rubric.

Measures and Targets
Direct and indirect assessment evidence will be collected.
Direct Assessment

In ENGL 1101 and 1102, students will be asked to develop portfolios demonstrating proficiency in rhetorical arguments in written, oral, visual, and nonverbal modes. Student portfolios are scored at the conclusion of the semester by groups of three faculty members to ensure consensus on the quality of student learning. According to our baseline data, 85% of students are expected to perform at the level of developing or higher. A Communication Rubric is used to assess students portfolios includes the following dimensions: Rhetorical Awareness, Stance, Development of Ideas, Organization, Conventions, Design for Medium, and Process Awareness. The rubric is structured to assess student performance on a continuum: 1-Basic, 2 Beginning, 3-Developing, 4-Competent, 5-Mature, 6-Exemplary.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Basic</th>
<th>Beginning</th>
<th>Developing</th>
<th>Competent</th>
<th>Mature</th>
<th>Exemplary</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rhetorical Awareness</strong></td>
<td>Overlooks two or more aspects of the situation or assignment, and thus does not fulfill the task</td>
<td>Overlooks at least one aspect of the situation or assignment and thus compromises effectiveness</td>
<td>Attempts to respond to all aspects of the situation or assignment, but the attempt is incomplete</td>
<td>Addresses the situation or assignment in a complete but predictable way</td>
<td>Addresses the situation completely, with unexpected insight</td>
<td>Addresses the situation in a sophisticated manner that could advance professional discourse on the topic</td>
</tr>
<tr>
<td><strong>Stance</strong></td>
<td>Involves an unspecified or confusing argument; significance is not evident</td>
<td>Makes an overly general argument; significance is difficult to discern, or not appropriate to the rhetorical situation</td>
<td>Makes a simplistic or implicit argument, or multiple arguments that have no clear connection to one another; gestures towards significance, but does not fully develop it</td>
<td>Makes an explicit and straightforward argument that does not oversimplify the problem or question; explores at least one implication of the argument in depth</td>
<td>Makes a complex, unified argument that clearly articulates a position or stance; explores multiple implications of the argument</td>
<td>Offers an inventive, expert-like argument that clearly articulates a sophisticated position/stance; explores multiple implications of the argument in a compelling manner</td>
</tr>
<tr>
<td><strong>Development of Ideas</strong></td>
<td>Claims requiring support are not backed by necessary evidence; lacks analysis of major pieces of evidence; content is not substantive</td>
<td>Evidence and/or analysis is weak or contradictory; does not account for important evidence that could support or disprove the argument</td>
<td>Evidence provides minimal but necessary support to each point; attempted analysis is not sufficient to prove the argument</td>
<td>Evidence and analysis are substantive; they support the argument and related claims, but are mostly predictable</td>
<td>Evidence fully supports and proves the argument and all related claims; evidence is always paired with compelling analysis</td>
<td>Evidence and analysis are precise, nuanced, fully developed, and work together to enhance the argument</td>
</tr>
<tr>
<td><strong>Organization</strong></td>
<td>Lacks unity in constituent parts; fails to create coherence among constituent parts; contains major argumentative holes or fallacies</td>
<td>Uses insufficient unifying statements; uses few effective connections; some logical moves necessary to prove the argument are absent</td>
<td>Uses some effective unifying claims, but a few are unclear; inconsistently makes connections between points and the argument; employs simplistic organization</td>
<td>States unifying claims with supporting points that relate clearly to the overall argument and employs an effective but mechanical scheme</td>
<td>Asserts and sustains a claim that develops logically and progressively; adapts typical organizational schemes for the context; achieves substantive coherence</td>
<td>Artifact is organized to achieve maximum coherence and momentum; connections are sophisticated and complex when required</td>
</tr>
</tbody>
</table>

10
### Indirect Assessment

NSSE 2020 and 2023 and Georgia Tech’s Exit Survey data will be used as indirect measures. The NSSE items related to the Communication Outcome are:

**During the current school year, about how often have you done the following?**

- Summarized what you learned in class or from course materials
- Give a course presentation

**How much has your experience at this institution contributed to your knowledge, skills, and personal development in the following areas?**

- Writing clearly and effectively
- Speaking clearly and effectively

The Exit Survey items related to communication outcome to be used are:  
**How much has your experience at Georgia Tech contributed to your knowledge, skills, and personal growth in the following areas?** GT education contributed “very much” or “Quite a bit” to their development of Writing Skills, Oral Communication Skills, and Visual Communication Skills.

### Quantitative (Core Area A2) Outcome:

Student will demonstrate the ability to apply basic elements of differential and integral calculus to solve relevant problems.
Appropriate Methods/Measures

Courses that contribute to Quantitative ability

<table>
<thead>
<tr>
<th>Course ID</th>
<th>Course Name</th>
<th>Class Size</th>
<th>Main Enrolled Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 1552</td>
<td>Integral Calculus</td>
<td>Large (&gt;150 students)</td>
<td>students outside of Ivan Allen College of Liberal Arts and Scheller College of Business</td>
</tr>
<tr>
<td>MATH 1712</td>
<td>Survey of Calculus</td>
<td>Large (&gt;150 students)</td>
<td>Ivan Allen College of Liberal Arts and Scheller College of Business</td>
</tr>
</tbody>
</table>

Who assesses student performance?

Course instructors will assess and collect student performance information according to the timeline and identified questions.

Measures and Targets

Direct and indirect assessment evidence will be collected by the following plan:

**Direct Assessment**
Students will be asked to respond two questions:

Question 1 will assess the students’ ability to compute integrals and derivatives of functions. The student will be asked to compute an integral using an important technique of integration, such as integration by parts or substitution, to evaluate an integral. To solve this problem, the student will also need to demonstrate mastery of techniques to compute derivatives of functions.

Question 2 will assess the students’ ability to compute limits. The student will be asked to evaluate a problem that involves calculating a limit. To solve this problem, students need to demonstrate a clear understanding of limits.

By applying an appropriate scale, 85% of students are expected to achieve “Developing” or higher.

**Indirect Assessment**
NSSE 2020 and 2023 and Georgia Tech’s Exit Survey data will be used as indirect assessment. The NSSE items related to Quantitative Outcome to be used are:

*During the current school year, how often have you*
  * Reached conclusions based on your own analysis of numerical information (numbers, graphs, statistics, etc.)
  * Used numerical information to examine a real-world problem or issue (unemployment, climate change, public health, etc.)
  * Evaluated what others have concluded from numerical information*
The Exit Survey items related to quantitative outcome to be used are:
How much has your experience at Georgia Tech contributed to your knowledge,
skills, and personal growth in the following areas?
Georgia Tech education contributed “very much” or “Quite a bit” to their
development of Ability to reason and solve problems from quantitative information.

Georgia Tech contributed “very much” or “Quite a bit” to their development of
Mathematical Skills.

**Computing (Core Area B) Outcome:**
Students will be able to develop algorithms and implement them using an appropriate
computer language and will understand algorithmic complexity and reasonable versus
unreasonable algorithms.

**Appropriate Methods/Measures**

**Courses that contribute to the Institutional Option (Computing)**

<table>
<thead>
<tr>
<th>Course ID</th>
<th>Course Name</th>
<th>Class Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 1301</td>
<td>Introduction to Computing</td>
<td>Large (&gt;150 students)</td>
</tr>
<tr>
<td>CS 1315</td>
<td>Introduction to Media Computation</td>
<td>Large (&gt;150 students)</td>
</tr>
<tr>
<td>CS 1371</td>
<td>Computing for Engineers</td>
<td>Large (&gt;150 students)</td>
</tr>
</tbody>
</table>

**Who assesses student performance?**

Course instructors will assess and collect student performance information according
to the timeline and identified questions.

**Measures and Targets**

Direct and indirect assessment evidence will be collected by the following plan:

**Direct Assessment**
In CS 1301, 1315, and 1371, students will be asked to respond to three questions:

Question 1 will assess the student's ability on the first part of the outcome: Student will be able to develop algorithms and implement them using an appropriate computer language. This question will give the student a problem to solve and an incomplete solution to the problem. The student will be required to choose which of multiple possible pieces of code could be included in the code block to produce the correct output.

Question 2 will assess the student's ability on the second part of the outcome: Student will understand algorithmic complexity. This question will give the student a problem to solve and multiple pieces of code, each of which would work to solve the problem and each of which would produce the correct output. The student
will be required to choose which of these code functions would be the best and most efficient solution.

Question 3 will assess the student's ability on the third part of the outcome: Student will understand reasonable versus unreasonable algorithms. This question will give the student a problem to solve and multiple code segments--only one of which would produce a reasonable solution to the problem. The student will be required to choose the code that provides the correct solution.

By applying an appropriate scale, 85% of students are expected to achieve “Developing” or higher.

Indirect Assessment
NSSE 2020 and 2023 and Georgia Tech’s Exit Survey data will be used as indirect assessment. The NSSE items related to Computing Outcome to be used are:

Georgia Tech had contributed “very much” or “quite a bit” to their development in using computing and information technology

The Exit Survey items related to quantitative outcome to be used are:
How much has your experience at Georgia Tech contributed to your knowledge, skills, and personal growth in the following areas? GT education contributed “very much” or “Quite a bit” to their development of Understanding of technology applications relevant to your field of study.

Humanities, Fine Arts, and Ethics (Core Area C) Outcome:
Student will be able to describe relationships among languages, philosophies, cultures, literature, ethics, or the arts.

Appropriate Methods/Measures

Courses that contribute to Humanities, Fine Arts, and Ethics

Based on the enrollment and class type from the past 5 academic years. Approximately 54% students took large courses (> 150), 15% students took middle courses (50-100), and 9% students took small courses (20-50). To ensure school representation is appropriate, meetings with course coordinators and instructors were conducted. The following set of classes includes each discipline contributing to the Humanities outcome:

<table>
<thead>
<tr>
<th>Course ID</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Large Class</strong> (&gt; 150)</td>
<td></td>
</tr>
<tr>
<td>FREN 1002</td>
<td>Elementary French II</td>
</tr>
<tr>
<td>SPAN 2001</td>
<td>Intermediate Spanish I</td>
</tr>
<tr>
<td>ID 2202</td>
<td>History of Modern Industrial Design</td>
</tr>
<tr>
<td>ID 2241</td>
<td>History of Art 1</td>
</tr>
<tr>
<td>PHIL 3109</td>
<td>Engineering Ethics</td>
</tr>
<tr>
<td>ARCH 2111</td>
<td>History of Arch 1</td>
</tr>
<tr>
<td><strong>Middle Class</strong> (50-100)</td>
<td></td>
</tr>
</tbody>
</table>

14
Who assesses student performance?

Course instructors will assess and collect student performance information according to the timeline and identified projects, papers, or questions.

Measures and Targets

Direct and indirect assessment evidence will be collected by the following plan:

**Direct Assessment**

- **FREN 1002 Elementary French II**
  
  **Final exam/quiz question:**
  The student will describe two aspects of French culture discussed in class: a) one that demonstrates a similarity of French culture with student’s native culture, and thus shouldn’t cause problems when student interact with a native French speaker; and b) one that demonstrates an important cultural difference or contrast that student need to keep in mind when interacting with a native French speaker within their culture.
  Evaluation for parts a) and b), 6 points total:
  3: student provides a completely adequate and clear example
  2: student example is partially adequate, but requires more evidence to be completely appropriate
  1: student example is minimally adequate: it is a possible example, but requires reflection to see appropriateness
  0: student example is not appropriate or does not relate to information from this course

- **SPAN 2001 Intermediate Spanish I**
  
  **Final exam/quiz question:**
  The student will describe two aspects from a Hispanic culture we discussed in class: a) one that demonstrates a similarity from a Hispanic culture with student’s native culture, and thus shouldn’t cause problems when student interact with a native Spanish speaker; and b) one that demonstrates an important cultural difference or contrast that student need to keep in mind when interacting with a native Spanish speaker within their culture.
  Evaluation for parts a) and b), 6 points total:
  3: student provides a completely adequate and clear example
2: student example is partially adequate, but requires more evidence to be completely appropriate
1: student example is minimally adequate: it is a possible example, but requires reflection to see appropriateness
0: student example is not appropriate or does not relate to information from this course

ID 2202 History of Modern Industrial Design

The student will be able to demonstrate an understanding of the influences of literature on the design arts by correctly identifying multiple answers on an exam question.

Exam question: From a set of answers, identify the correct cross-influences from the Transcendentalist literature of the late/early 20th century (Emerson, Thoreau) on the design field known as The Arts & Crafts Movement (Morris, Stickley) in terms of selection and use of (ecological) materials, function of the design (within Survivalist agendas) and design narratives (“spiritual truth”).

ID 2241 History of Art 1

The student will be able to demonstrate an understanding of the influences of philosophy on Renaissance art the by correctly identifying multiple answers on an exam question.

Exam question: From a set of answers, identify the cross-influences from the philosophy of Neoplatonism (Ficino and the Medici School) on the art practiced by Michelangelo in terms of his choices in subject matter for his art projects (“the Great Chain of Being” and “Perfect Forms”) and his compositional devices (hierarchies in spatial positioning, perspective systems, use of self-portraits).

PHIL 3109 Engineering Ethics

Students will be asked to write a short (2 pages, double-spaced) assignment summarizing and providing a critical reaction to a concrete case study from the field of engineering ethics. Through this writing they will identify an ethical dilemma and describe the relationships that are in potential conflict. Faculty will score this writing to determine the quality of student learning. Approximately 80% of students will score at 8 or higher out of 10.

ARCH 2111: History of Architecture I

In ARCH 2111, students will be asked to respond two questions:

Question 1 will assess the evolution of architectural drawing conventions as an essential graphic language that transcended isolated areas and eras. Students will be asked to explain how the introduction of paper shaped architectural production and enhances our understanding of architectural history. Students’ answers should be approximately one paragraph with a clear thesis statement and at least three specific examples from different geographic regions (artifacts, projects/sites, and/or architects and how paper transformed their work and/or legacy).
**Question 2** will assess the translation of structural and performative concepts in architecture. Students will be asked to examine two specific structural features or assemblies then explain how they are directly representative of cross-cultural contact, assimilation, and/or adaptation.

- **ML 2500 Think Globally, Act Locally: An Introduction to Cross-Cultural Studies**
  
  **Final exam/quiz question:**
  The student will describe two aspects of one of the cultures discussed in class: a) one that demonstrates a common or important literary theme/idea from that culture that is also found in literature from student’s native culture, and thus shouldn’t cause problems when discussing with a native speaker of that culture; and b) one that demonstrates a common or important literary theme/idea that is quite different or absent from those themes found in student’s native culture, and which might cause problems when discussing literature with a native speaker of that culture within their culture. 
  Evaluation for parts a) and b), 6 points total: 
  3: student provides a completely adequate and clear example 
  2: student example is partially adequate, but requires more evidence to be completely appropriate 
  1: student example is minimally adequate: it is a possible example, but requires reflection to see appropriateness 
  0: student example is not appropriate or does not relate to information from this course 

- **CHIN 2001 Intermediate Chinese I**
  
  **Final exam/quiz question:**
  The student will describe two aspects of Chinese culture we discussed in class: a) one that demonstrates a similarity of Chinese culture with student native culture, and thus shouldn’t cause problems when you interact with a native Chinese speaker; and b) one that demonstrates an important cultural difference or contrast that student need to keep in mind when interacting with a native Chinese speaker within their culture. 
  Evaluation for parts a) and b), 6 points total: 
  3: student provides a completely adequate and clear example 
  2: student example is partially adequate, but requires more evidence to be completely appropriate 
  1: student example is minimally adequate: it is a possible example, but requires reflection to see appropriateness 
  0: student example is not appropriate or does not relate to information from this course 

- **LMC 3226 Major Authors and LMC 2100 Introduction to Science, Technology and Culture**
  
  LMC3226 and LMC 2100, students will be asked to produce a piece of writing that demonstrates a description of the relationships among languages, philosophies,
cultures, literature, ethics, or the arts. Faculty will score this writing according to a scale.

- **PHIL 4176 Environmental Ethics**

  Students will be asked to write a Consideration, an assignment in which they describe the ethical implications of an option for responding to a problem situation, drawing from several distinct ethical frameworks. The course uses a specification grading scheme whereby assignments are graded satisfactory/unsatisfactory, with time-limited opportunities to revise. The assessment will compare number of students who complete the first consideration satisfactorily on their first attempt with the number who complete the additional considerations to reach the satisfactory level.

  By applying an appropriate scale, 85% of students are expected to achieve “Developing” or higher.

  **Indirect Assessment**

  NSSE 2020 and 2023 and Georgia Tech’s Exit Survey data will be used as indirect assessment. The NSSE items related to the Humanities and Ethics Outcomes are:

  *Georgia Tech had contributed “very much” or “quite a bit” to their developing/clarifying a personal code of values and ethics.*

  The Exit Survey items related to Humanities and Ethics are:

  *Georgia Tech contributed “very much” or “quite a bit” to their ability to make ethically responsible decisions*

  *How much has your experience at Georgia Tech contributed to your knowledge, skills, and personal growth in the following areas? GT education contributed “very much” or “Quite a bit” to their development of an appreciation for different cultures.*

**Natural Sciences, Math, and Technology (Core Area D) Outcome:**

Student will be able to demonstrate the ability to obtain, analyze, interpret, and criticize qualitative observations and quantitative measurements to explain natural phenomena and to test hypotheses.

**Appropriate Methods/Measures**

**Courses that contribute to Natural Sciences, Math, and Technology**
Course instructors will assess and collect student performance information according to the timeline and identified projects, papers, or questions.

### Measures and Targets

Direct and indirect assessment evidence will be collected by the following plan:

**Direct Assessment**

- **CHEM 1310 General Chemistry**
  
  General Chemistry is a combined lecture-laboratory science course that explores the fundamental laws and theories of chemical reactions. To assess student’s ability to obtain, analyze, interpret, and criticize qualitative observations, the student will prepare an abbreviated technical report for the experiment “Fundamentals of Chemistry, Precision, and Accuracy.” They will be asked to respond to the following prompt:

  1. Making references to specific results and solubility rules; explain how students observations during the experiment are consistent with the solubility rules.

  To assess student’s ability to obtain, analyze, interpret, and criticize quantitative measurements, the student will prepare an abbreviated technical report for the experiment “Exploring Gas Laws.” They will be asked to respond to the following prompt:

  1. During the experiment, students measured the relationship between pressure (P) and volume (V) for air, with temperature and number of moles held constant. Report the relationship students found as an equation relating P and V and comment on the accuracy of students’ data to the ideal gas model.

- **BIOS 1207DL Biological Principles Laboratory**
  
  The objective of BIOS 1207 Lab is to give students experience in how to carry out research in biology by designing an experiment, formulating a hypothesis, and then analyzing and interpreting data. Students will be asked to create and evaluate written lab reports and give research presentations. Faculty will score students labs assignments on a scale.

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<table>
<thead>
<tr>
<th>Course ID</th>
<th>Course Name</th>
<th>Class Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 1310</td>
<td>General Chemistry</td>
<td>Large (&gt;150 students)</td>
</tr>
<tr>
<td>BIOS 1207DL</td>
<td>Biological Principles Laboratory</td>
<td>Large (&gt;150 students)</td>
</tr>
<tr>
<td>EAS 1600</td>
<td>Introduction to Environmental Science</td>
<td>Large (&gt;150 students)</td>
</tr>
<tr>
<td>PHYS 2212</td>
<td>Introductory Physics II</td>
<td>Large (&gt;150 students)</td>
</tr>
<tr>
<td>MATH 1554</td>
<td>Linear Algebra</td>
<td>Large (&gt;150 students)</td>
</tr>
<tr>
<td>MATH 1711</td>
<td>Finite Mathematics</td>
<td>Large (&gt;150 students)</td>
</tr>
</tbody>
</table>
EAS 1600 Introduction to Environmental Science
Students will be asked to complete a lab report/lab project/quiz, and they should be able to design or implement quantitative information in a visual space (i.e. graphs/plotting software) and communicate experimental findings from visualized data.

PHYS 2212 Introductory Physics II
Students will respond to three questions:
Question 1 will assess students' ability to obtain experimental data. Students will be presented with diagrams of several experimental set-ups and asked which could be used to collect data related to a particular physical phenomenon. They will be asked which parameter should be controlled and which should be measured.

Question 2 will assess students' ability to analyze and interpret experimental data. Students will be presented with several graphs of experimental data, and asked which could be used to analyze data related to a particular physical phenomenon, and what physical property the graph displays.

Question 3 will assess students' ability to criticize qualitative observations and quantitative measurements. Students will be presented with a graph of experimental data, and asked how it has been affected by random and systematic errors.

Faculty will score the student responses on a scale.

MATH 1554 Linear Algebra
Final exam/quiz question:
Students will demonstrate the ability, given a transition diagram or stochastic process word problem, to obtain a stochastic matrix which represents the transition diagram, determine whether the Markov Chain corresponding to a given initial state tends to a long-term steady state vector by analyzing the values in stochastic matrix, and then compute the steady state vector if it exists. The student will then interpret the information to predict the long-term distributions of the given population.

Faculty will score the student responses on a scale.

MATH 1771 Finite Mathematics
Final exam/quiz question:
Students will demonstrate the ability, given a word problem relating a real life situation involving a business scenario or natural phenomenon and containing a table of data, to obtain a linear regression model for the data by analyzing the data points. The student will then use the linear regression model to analyze and interpret the information in order to predict the future value of the dependent variable and make a recommendation on a desirable course of action.

Faculty will score the student responses on a scale.
Indirect Assessment
Georgia Tech’s Exit Survey data will be used as an indirect assessment.

The Exit Survey items related to natural sciences, math, and technology to be used are:
Georgia Tech contributed “very much” or “quite a bit” to their ability to apply scientific methods of inquiry

Social Sciences (Core Area E) Outcome:
Student will demonstrate the ability to describe the social, political, and economic forces that influence social behavior.

Appropriate Methods/Measures

Courses that contribute to the Social Sciences

Based on the enrollment and class type from the past five years, about 2/3 student took large courses (>150 students), and about 1/3 students took small courses (20-50). There are 15 courses selected:

<table>
<thead>
<tr>
<th>Course ID</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large Class (&gt;150)</td>
<td></td>
</tr>
<tr>
<td>ECON 2100</td>
<td>Economic Analysis and Policy Problems</td>
</tr>
<tr>
<td>HIST 2111</td>
<td>The United States to 1877</td>
</tr>
<tr>
<td>HIST 2112</td>
<td>The United States since 1877</td>
</tr>
<tr>
<td>INTA 1200</td>
<td>American Government in Comparative Perspective</td>
</tr>
<tr>
<td>INTA 2030</td>
<td>Ethics in International Affairs</td>
</tr>
<tr>
<td>POL 1101</td>
<td>Government of the United States</td>
</tr>
<tr>
<td>PSYC 1101</td>
<td>General Psychology</td>
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<tr>
<td>PSYC 2210</td>
<td>Social Psychology</td>
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<tr>
<td>SOC 1101</td>
<td>Introduction to Sociology</td>
</tr>
<tr>
<td>PSYC 2230</td>
<td>Abnormal Psychology</td>
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<tr>
<td>Small Class (20-50)</td>
<td></td>
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<tr>
<td>CP 4020</td>
<td>Introduction to Urban and Regional Planning</td>
</tr>
<tr>
<td>POL 2101</td>
<td>State and Local Government</td>
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</tbody>
</table>

Who assesses student performance?

Course instructors will assess and collect student performance information according to the timeline and identified projects, papers, or questions.

Measures and Targets

Direct and indirect assessment evidence will be collected by the following plan:

Direct Assessment
ECON 2100 Economic Analysis & Policy Problems

ECON 2100 is structured as an introductory economics course that exposes students to the foundational principles of both microeconomics and macroeconomics. The Core Area E outcome is assessed based on two subsets of midterm/final exam questions. Questions were chosen such that students would not be required simply to recall the definition of a term or set of terms, but to synthesize and apply their understanding of the concepts themselves. The questions will be administered to ECON 2100 students on either midterm exams or final exams. The first subset of questions pertains to the following core microeconomic concepts: opportunity cost, price controls, elasticities, and externalities. The second subset pertains to the following core macroeconomic concepts: inflation, the role of money, economic forces and growth, and interest rates. The assessment criteria are as follows:

<table>
<thead>
<tr>
<th># correct answers out of 8 questions</th>
<th>Evaluation</th>
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</thead>
<tbody>
<tr>
<td>7-8</td>
<td>Exceeds expectations</td>
</tr>
<tr>
<td>5-6</td>
<td>Meets expectations</td>
</tr>
<tr>
<td>3-4</td>
<td>Does not meet expectations – Needs improvement</td>
</tr>
<tr>
<td>2 or fewer</td>
<td>Does not meet expectations – Severely deficient</td>
</tr>
</tbody>
</table>

HIST 2111 The United States to 1877

Graded activities in HIST 2111 can range widely depending on the professor’s pedagogical approach, but usually include objective tests that allow students to demonstrate their ability to describe how social, political, and economic forces influence the behavior of individuals and larger social groups (e.g., families, organizations, nations). Therefore, to provide an assessment of Core Area E the professor will designate three questions on the final examination that will assess students' ability to describe:

- How social forces influence the history of the United States to 1877;
- How political forces influence the history of the United States to 1877; and
- How economic forces influence the history of the United States to 1877.

Each student will receive a score of 0 – 3 on an index measuring the accuracy of their responses.

3: student had three correct answers, therefore, student showed sufficient ability to describe the social, political, and economic forces that influence social behavior.
2: student had two correct answers, therefore, student showed a partial ability to describe the social, political, and economic forces that influence social behavior.
1: student had one correct answer, therefore, student showed a minimal ability to describe the social, political, and economic forces that influence social behavior.
0: student had zero correct answers, therefore, student did not demonstrate an ability to describe the social, political, and economic forces that influence social behavior.
HIST 2112 The United States since 1877

Graded activities in HIST 2112 can range widely depending on the professor’s pedagogical approach, but usually include objective tests that allow students to demonstrate their ability to describe how social, political, and economic forces influence the behavior of individuals and larger social groups (e.g., families, organizations, nations). Therefore, to provide an assessment of Core Area E the professor will designate three questions on the final examination that will assess students’ ability to describe:

- How social forces influence the history of the United States since 1877;
- How political forces influence the history of the United States since 1877; and
- How economic forces influence the history of the United States since 1877.

Each student will receive a score of 0 – 3 on an index measuring the accuracy of their responses.

3: student had three correct answers, therefore, student showed sufficient ability to describe the social, political, and economic forces that influence social behavior.
2: student had two correct answers, therefore, student showed a partial ability to describe the social, political, and economic forces that influence social behavior.
1: student had one correct answer, therefore, student showed a minimal ability to describe the social, political, and economic forces that influence social behavior.
0: student had zero correct answers, therefore, student did not demonstrate an ability to describe the social, political, and economic forces that influence social behavior.

INTA 1200 American Government in Comparative Perspective

Final exam:
INTA 1200 American Government in Comparative Perspective explores the institutions and processes of government and how they influence the lives of their citizens in social, political, and economic areas. In this class, the final exam is used to assess this outcome. On the final exam students must typically display knowledge of electoral system formation and how it influences voter turnout, explore the responsibilities, impact and realities of both political parties and interest groups for shaping public discourse and policy, as well as have competence over various national and state level public policies such as civil liberties, justice systems, and economic policies. The threshold used for competence is a score of 70% on the final exam with class competence being 70% of student obtaining this score.

INTA 2030 Ethics in International Affairs

The overall objective of this course is to introduce students to issues of morality and ethical reasoning in international relations. The course looks at the importance of determining individual and collective conduct of foreign relations and examines the ethical nature of rules, structures, and patterns of behavior in the international system. In this context, acquiring knowledge of the complex interplay and even tensions among political morality and social, political, and economic forces, is critical.
in providing students with a solid understanding of why international state and non-state actors behave the way they do.

The course learning outcome – ability of students to describe the social, political, and economic forces that influence social behavior – will be assessed in the context of the final exam, which is worth a maximum total score of 25 points. For this exam, students will have the option to choose between writing a research paper and taking a cumulative exam consisting of multiple-choice questions. The following assessment methods and instruments will be used for the two forms of final examination:

1. Research paper. Students will discuss the topic selected with the instructor and will submit an outline and annotated bibliography in week twelve to ensure that the topic serves the learning outcome. To measure student success in achieving this learning outcome, the following scale will be used:
   a. 22.5-25 points: work reflects an excellent understanding of the social, political, and economic forces that influence social behavior;
   b. 20-22.4 points: work reflects a very good understanding of the social, political, and economic forces that influence social behavior;
   c. 17.5-19.9 points: work reflects a satisfactory understanding of the social, political, and economic forces that influence social behavior;
   d. 15-17.4 points: work reflects a marginally acceptable understanding of the social, political, and economic forces that influence social behavior;
   e. Below 15: work reflects an incomplete and unacceptable understanding of the social, political, and economic forces that influence social behavior;

2. Cumulative multiple-choice exam. This exam will include 50 questions, two of which are listed below to illustrate their application and practical nature aiming to assess student understanding of the social, political, economic, and moral factors at play in decision making processes. The above grading scale will be used for this assignment, as well.

- **POL 1101 Introduction to American Government**
  Among the topics discussed in POL 1101 is understanding the causes and effects of trade protectionism and free trade on American politics. Basic explanations of comparative advantage and distributive trade politics are used to explain on-going debates over trade. This material allows the students to see the contrast between economic and political interest, and the actions and messaging used by politicians and different interest groups to sway public opinion and voters.

  Faculty score student responses on a scale.

- **PSYC 1101 General Psychology**

  **Concept paper:**

  Students are asked to write Concept Papers throughout the course. The goal is to examine a psychology subfield of interest (e.g. social, personality, biopsychology) and summarize an area of research. Students are asked to comment on how social, personality, or biopsychology might influence themselves or someone else.
The faculty score the paper on a scale.

> **PSYC 2210 Social Psychology**
Social psychology is defined as the scientific study of the thoughts, feelings, and behaviors of individuals in social situations. In the PSYC 2210 course, we discuss topics such as how others can persuade us to change our attitudes or behaviors.

In PSYC 2210, students are asked to read empirical articles on topics such as persuasion, stereotype threat, and social loafing and are asked to submit an article critique and personal reflection. One assigned article is: “Knowing is half the battle: Teaching stereotype threat as a means of improving women’s math performance” (Johns et al., 2005). This article supplements our in-class discussion of stereotype threat (the risk of confirming negative stereotypes about an individuals’ own group) and provides details about an intervention to weaken the impact of stereotype-related performance. We also discuss how stereotype threat can impact more than just performance, but also confidence and even concealment of one’s true identity.

**Empirical Article Critiques:**

The article critiques must include a critical summary of the article and student personal reaction to the article. The article critiques must be typewritten and a minimum of 500 words. In addition to the summary and personal reaction, students must include two (2) thought-provoking questions from the readings that will be used to stimulate class discussion.

**SECTION 1. Summary of Article:** Students will describe the study and include the following information if applicable:

1. Problem/Purpose
2. Key Hypotheses
3. Sample
4. Measures & Procedure
5. Results/Conclusions
6. Practical Application

**SECTION 2. Personal Reaction:** In this section, students will provide a thoughtful reaction to multiple aspects of the article (describe reaction and reasoning).

**SECTION 3. Discussion Questions:** In this section, provide two questions that could be used to facilitate discussion.

Faculty will score the critiques on a scale.

> **SOC 1101 Introduction to Sociology**
Graded activities in SOC 1101 include objective tests that allow students to demonstrate their ability to describe how social, political, and economic forces influence the behavior of individuals and larger social groups (e.g., families, organizations, nations).
Therefore, to provide an assessment of Core Area E, the professor will designate three questions on the final examination that will assess students’ ability to describe:

- How social forces influence the behavior of individuals or social groups;
- How political forces influence the behavior of individuals or social groups; and
- How economic forces influence the behavior of individuals or social groups.

Each student will receive a score of 0 – 3 on an index measuring the accuracy of their responses.  

3: student had three correct answers, therefore, student showed sufficient ability to describe the social, political, and economic forces that influence social behavior.  

2: student had two correct answers, therefore, student showed a partial ability to describe the social, political, and economic forces that influence social behavior.  

1: student had one correct answer, therefore, student showed a minimal ability to describe the social, political, and economic forces that influence social behavior.  

0: student had zero correct answers, therefore, student did not demonstrate an ability to describe the social, political, and economic forces that influence social behavior.

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**PSYC 2230 Abnormal Psychology**

This course gives an overview of the field of Abnormal Psychology based on the contemporary biopsychosocial perspective and scientific research. The influence of social, political, and economic forces are inherent in considering “environmental” contributions to the interaction of the person and the environment. Case studies are presented in class and analyzed in biopsychosocial terms.

The Discussion Leader assignment is for 100 points, so students will write an essay on the topic and some discussion questions. Students will

- Read assigned textbook chapter
- Locate an outside article related to the topic(s) covered in assigned textbook chapter.
- Provide a citation and/or a link to students outside article.
- Summarize students outside article.
- Clearly explain the connection of students outside resource to the textbook reading.

Pose a couple of interesting questions (2-3) related to students’ article and the textbook chapter that will make classmates think about the topic.

For each topic, if students are not assigned to be a Discussion Leader, then students are a Discussion Responder. Responders are required to make at least one post to one of the leader prompts for that chapter, which will be graded out of 10 points.

A Discussion Responder’s post needs to contribute something to the discussion or move it along in some way. If students agree or disagree, say why. If students give an example, say why it's relevant to the Discussion. Same if students ask a follow-up question, what's students’ underlying concern? If students suggest an alternative, say why.
Faculty will use rubric to score students’ performance.

- **CP 4020: Introduction to Urban and Regional Planning**
  CP 4020 provides students an overview of the planning of cities and metropolitan regions and describes how planning influences the design and development of human settlements. Students will be asked to complete an individual project that students will explore a comprehensive plan and other information that sheds light on the planning processes in the community. This individual project will demonstrate students' ability to describe the social, political, and economic forces that influence social behavior. Faculty will score this writing according to a scale to determine the quality of student learning.

- **POL 2101: State and Local Government**
  In this course students gain a hands-on understanding how the political process of state and local government operates in the United States. POL 2101 is based on problem-based learning principles to provide students the skills and confidence to use their problem-solving skills to address policy problems facing society today. Students have the opportunity to discuss their ideas with elected officials and develop strategies used in policy processes. The major tasks to achieve the course goal are (1) creating a problem definition, (2) writing a policy paper, and (3) discussion of advocacy strategies. Brief assignments and a policy paper are used to assess progress.
  
  Faculty will score the policy paper on a scale.

**Indirect Assessment**

Georgia Tech’s Exit Survey data will be used as indirect assessment.

The Exit Survey items related to the social sciences are:

- **Georgia Tech contributed “very much” or “somewhat” to their understanding of current events**

**Analysis**

The Office of Academic Effectiveness will analyze the assessment information and create appropriate reports for distribution across stakeholders.

**Actions and Follow-Up**

At the course level, faculty members teaching in Gen Ed will be continuously assessing students and their attainment of the Gen Ed outcomes. This iterative process of teaching and assessment in the classroom includes pedagogical adjustments that focus on student success and learning.

Faculty and administrators will interpret assessment information related to students’ attainment of the Institute’s Gen Ed outcomes. The General Education and Policy Subcommittee, serving under the Institute Undergraduate Curriculum Committee which is commissioned by the Faculty Senate with representation from all the colleges at Georgia Tech, will analyze and interpret the assessment results from direct and indirect measures.
and will make recommendations related to student learning and attainment. In addition, the Faculty Council on Accreditation charged by the Provost and the Institute Assessment Council charged by the Associate Provost for the Office of Academic Effectiveness will also study the trends and assessment information related to student learning and attainment of the Gen Ed learning outcomes and make recommendations related to student learning, as well as the assessment process. Assessment information may also inform opportunities for faculty development programs through the Center for Teaching and Learning of other Faculty Development initiatives related to good practices in teaching and learning.

Ultimately, Georgia Tech seeks to ensure that its Gen Ed outcomes are adequately embedded throughout the Gen Ed courses. The emphasis of these Gen Ed outcomes will be well documented through our signature and selected assignments, and Georgia Tech’s focus will clearly be on our number one value: Students are our top priority.

**Conclusion**

Georgia Tech Gen Ed plays a critical role in providing students with foundational knowledge, exposing students to multiple disciplines and ways of knowing in Communication, Mathematics, Computer Science, Natural Sciences, Social Sciences, and Humanities, Fine Arts, and Ethics. It is important that Georgia Tech implements a Gen Ed Assessment Plan that provides information about how students experience Gen Ed and how they demonstrate their learning of the Gen Ed outcomes within a framework of transparency.
## Appendix A

### Key Personnel for Each Outcome

#### Communication Outcome:
Student will demonstrate proficiency in the process of articulating and organizing rhetorical arguments in written, oral, visual, and nonverbal modes, using concrete support and conventional language.

<table>
<thead>
<tr>
<th>Name</th>
<th>Position and Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>McKenna Rose</td>
<td>Brittain Fellow and Assistant Director of Assessment, <a href="mailto:mckenna.rose@lmc.gatech.edu">mckenna.rose@lmc.gatech.edu</a></td>
</tr>
<tr>
<td>Melissa Ianetta</td>
<td>Interim School Chair and Professor, <a href="mailto:melissa.ianetta@lmc.gatech.edu">melissa.ianetta@lmc.gatech.edu</a></td>
</tr>
<tr>
<td>Andy Frazee</td>
<td>Senior Academic Professional and Director of Writing and Communication, <a href="mailto:andy.frazee@lmc.gatech.edu">andy.frazee@lmc.gatech.edu</a></td>
</tr>
<tr>
<td>Roberta Berry</td>
<td>Associate Vice Provost for Undergraduate Education &amp; Executive Director of Honors Program, <a href="mailto:robertaberry@gatech.edu">robertaberry@gatech.edu</a></td>
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<tr>
<td>Sarah Wu</td>
<td>Assessment Manager, <a href="mailto:sarah.wu@gatech.edu">sarah.wu@gatech.edu</a></td>
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<td>Loraine Phillips</td>
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<tr>
<td>Reta Pikowsky</td>
<td>Associate Vice Provost and Registrar, <a href="mailto:reta.pikowsky@registrar.gatech.edu">reta.pikowsky@registrar.gatech.edu</a></td>
</tr>
</tbody>
</table>

#### Quantitative Outcome:
Student will demonstrate the ability to apply basic elements of differential and integral calculus to solve relevant problems.

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<thead>
<tr>
<th>Name</th>
<th>Position and Contact Information</th>
</tr>
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Computing Outcome:
Student will be able to develop algorithms and implement them using an appropriate computer language and will understand algorithmic complexity and reasonable versus unreasonable algorithms.

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</table>

Humanities, Fine Arts, and Ethics Outcome:
Student will be able to describe relationships among languages, philosophies, cultures, literature, ethics, or the arts.

<table>
<thead>
<tr>
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</table>
### Natural Sciences, Math, and Technology Outcome:
Student will be able to demonstrate the ability to obtain, analyze, interpret, and criticize qualitative observations and quantitative measurements to explain natural phenomena and to test hypotheses.

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### Social Sciences Outcome:
Student will demonstrate the ability to describe the social, political, and economic forces that influence social behavior.

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