Computer Science, Ethics & Society, AB

The B.S. degree is the most technical undergraduate degree in computer science. The A.B. degree has fewer requirements than the B.S. degree, and so it can be ideal for combining computer science with another rigorous course of study. The CSES major integrates technical training in computer science with study in digital ethics, law, and policy. The Concentration in Technology, Ethics, and Society provides a pathway for B.S. and A.B. students to obtain exposure to and literacy in the ethical, legal, and social implications of their field. Finally, the Minor lets students studying fields other than CS develop technical expertise in computer science. Like most universities, Georgetown designs its undergraduate programs in computer science to conform with the ACM-IEEE guidelines on undergraduate computer science education.

Majors in Computer Science

The B.S. program has nineteen required courses, and the A.B., thirteen. The difference in requirements between the B.S. and A.B. comes from reducing the number of required mathematics courses from five to three and reducing the number of required computer science courses from fourteen to ten.

Both the B.S. and A.B. programs share the core sequence of Computer Science I and II, Mathematical Methods for Computer Science, Data Structures, Advanced Programming, and Introduction to Algorithms, which prepares students to take any upper-level computer science elective. At this point the two programs diverge. B.S. students must take Computer Organization, Programming Languages, and Operating Systems, which provides these students with the required breadth of understanding of the field. Students intending to pursue postgraduate studies or seeking employment in most traditional areas of computer science are encouraged to pursue the B.S. option. B.S. and A.B. students are encouraged to complete a senior thesis. Finally, B.S. and A.B. students have the option of adding to their majors the Concentration in Technology, Ethics, and Society (TES).

The A.B. in Computer Science, Ethics, & Society (CSES) combines strong, A.B.-level technical training in CS with deep study of the ethical and policy challenges relevant to CS, as well as tools and frameworks to build responsible practices and governance. Students interested in this major might include, for example, those who want to go on to Law School to specialize in Technology Law; master's programs in Public Policy to specialize in Tech Policy; or simply have a deep interest in understanding the technical, social, and ethical issues at the heart of computer science developments that are reshaping society. A key commitment of this major is attention to integration and application of ethical considerations within CS work. The CSES major is a modified version of the A.B. that: reduces the number of CS electives, adds electives specifically related to digital ethics, changes the required math course from Calculus to Probability and Statistics (MATH-1040), and adds a required Introduction to Tech, Ethics, and Society course, Digital Law & Policy course, and a project-based Senior Capstone course.

All of the major programs require elective courses in computer science. B.S. students must take five, A.B. students must take four, and CSES students must take two, although CSES students also take elective courses in TES. The CS elective courses for these programs are the same, although A.B. and CSES students can take the additional required courses for the B.S. program as electives. Students in these programs can take graduate-level courses as electives with the permission of the instructor. Students in these programs can also, with the approval of the department's undergraduate curriculum committee, satisfy one elective requirement by taking one course with significant computational content from another department or program. There is also the option of pursuing independent study through research or reading tutorials under the direction of a member of the faculty as elective courses.

External Electives

Students can elect to substitute one course from another department or program for one computer science elective. The external elective must contain significant computational content and can not count toward any other degree requirements. Students who want such a course to count as an elective must obtain approval from the Director of Undergraduate Studies (DUS). Students are strongly advised to obtain approval before taking the course to be certain it will count as an elective. The department maintains a list of approved external electives on its website. There is an exception for students who have been accepted to the Accelerated Master's Program in Data Science and Analytics (DSAN); they may double count one of their DSAN courses as their one external elective.

Senior Thesis

The senior thesis is an opportunity for students to conduct research in computer science. Students complete a senior thesis by pursuing a research project, writing a substantial senior thesis, and presenting the thesis publicly. Students interested in this option must apply to individual faculty members. If accepted, the faculty member serves as the thesis advisor and oversees the project. The advisor and the student pick a thesis committee consisting of two additional faculty members. Once completed, the committee determines if the thesis is acceptable. The student must present their approved thesis publicly. If the committee approves the presentation and final version of the thesis, then it is published as a technical report, and the student's transcript is annotated to indicate that they completed a senior thesis in computer science. Students have the option of obtaining credit for their thesis work by registering for a three-credit Research Tutorial with their faculty advisor. The tutorial can have the title "Senior Thesis Research". It counts as one computer science elective.

Graduating with Honors in Computer Science

Students who meet the following criteria may graduate with honors in computer science:

- Complete the B.S. in computer science
- Graduate with a 3.67 overall grade-point average and a 3.67 grade-point average in computer science classes
- Complete a senior thesis approved by the thesis committee

A student who does not meet the above criteria may petition the faculty for consideration to graduate with honors. Petitions must be submitted to the Director of Undergraduate Studies (DUS) by April 1st for spring graduates and November 1st for fall graduates.

Accelerated B.S./M.S. in Computer Science

The Department offers an accelerated master's degree that lets qualified B.S. students complete a Master of Science (M.S.) degree by extending their studies to a fifth year. Students should apply in the spring semester of their junior year. If accepted, students designate two courses that apply to both the B.S. and M.S. degrees.

Students complete the degree requirements by taking two required core and six elective graduate courses. Students can take two of these courses during their senior year as an undergraduate. For more information about the program, see the Department's web site, or contact the Department's Director of Graduate Studies.

Procedure for Undergraduate Curriculum-Related Requests

Students who have requests relating to curricular matters should first consult with their departmental advisor before forwarding the request to their program director. CSES majors should contact the CSES Program Director. Students pursuing the B.S., A.B., or the minor should contact the Director of Undergraduate Studies (DUS). Students without a departmental advisor can submit their requests directly to the DUS. Requests include course approvals, course substitutions, tutorial requests, proposals for study abroad, external electives, Consortium courses, and the like.

Contacts and Additional Information

For contacts and additional information, please see the Department Web site (https://cs.georgetown.edu/). This information includes the honor policy for CS courses, undergraduate learning goals, integrated writing in computer science, the prerequisite structure for undergraduate courses, and answers to frequently-asked questions.

Requirements

Code	Title	Credits
COSC 1020	Computer Science I	3
COSC 1030	Computer Science II	3
PHIL 2100	Intro to Tech/Ethics/Society	3
MATH 1040	Probability and Statistics	4
COSC 1110	Math Methods for Comp Sci [1]	3
COSC 2010	Data Structures	3
COSC 3200	Introduction to Algorithms	3
One course in Technology Law or Policy		3
One Philosophy (or Ethics) course in Digital Ethics		3
Two COSC electives, which must be COSC courses numbered 2000 or higher, or an approved external elective [2]		6
Two TES electives (totaling at least 6 credit hours), one of which may be substituted with a COSC elective		6
Senior Capstone in Tech, Ethics, and Society		3
Total Credits		**43**

[1] Students pursuing a major or minor in mathematics who take Introduction to Proofs and Problem Solving (MATH 2800) may elect to substitute one COSC elective for COSC 1110.

[2] Students can elect to substitute one course from another department or program for one computer science elective. The external elective must contain significant computational content and can not count toward any other degree requirements. Students who want such a course to count as an elective must obtain approval from the Director of Undergraduate Studies (DUS). Students are strongly advised to obtain approval before taking the course to be certain it will count as an elective. The department maintains a list of approved external electives on its website. There is an exception for students who have been accepted to the Accelerated Master's Program in Data Science and Analytics (DSAN); they may double count one of their DSAN courses as their one external elective.

A list of the approved ethics-related electives and philosophy courses that satisfy the above requirements is maintained on the program website.

Core Curriculum

As explained in the main Core Curriculum (https://bulletin.georgetown.edu/academics/undergraduate-regulations/georgetown-core-curriculum-requirements/) section of this Bulletin, the Georgetown core curriculum has two tiers: the first tier is university-wide, shared by each of the five undergraduate schools; the second is school-specific, and designed to embody the shared learning goals of the university core while at the same time furthering the specific mission and tradition of each school.

The University Core

The University Core, shared by all five undergraduate schools, anchors the undergraduate experience in the liberal arts disciplines of the College, in areas that nurture the intellect and the spirit, cultivating inquiry and critical reading, training a deeper sense of self within an expansive worldview. See below for the specific ways in which students in the College of Arts & Sciences fulfill these University Core requirements:

- Philosophy: 2 courses
- Theology and Religious Studies: 2 courses
- Writing: 2 courses[1]
- Humanities: Art, Literature, and Culture: 1 course
- Quantitative Reasoning and Data Literacy: 1 course
- Science for All: 1 course
- Pathways to Social Justice: 1-credit seminar and two overlay courses[2]

[1] The Writing requirement begins with WRIT 1150 Writing and Culture Seminar. The second course in the requirement is an Integrated Writing course embedded in the major.

[2] The two courses fulfilling the second half of the Pathways to Social Justice (PSJ) requirement may also fulfill other core requirements.

Philosophy

All students in the College of Arts & Sciences take two courses in philosophy, one in ethics and one in an area of general philosophy. Ethics courses include PHIL 1100 Introduction to Ethics and all PHIL courses numbered 2000-2499. General philosophy courses include PHIL 1500 Introduction to Philosophy and all PHIL courses numbered 2500-2999. The first philosophy course must be an introductory course (PHIL 1000-1999), ordinarily

either PHIL 1100 or PHIL 1500. The second philosophy course must be at the 2000-level. Students may not fulfill the requirement with two 1000-level courses. Seniors are not permitted in introductory courses, so seniors who have not taken any philosophy previously must fulfill the requirement with two courses at the 2000-level. Acceptable sequences are:

1. PHIL 1100 followed by any course numbered PHIL 2500-2999.
2. PHIL 1500 followed by any course numbered PHIL 2000-2499.
3. For seniors who have not taken any philosophy previously only: one course from PHIL 2000-2499 and one course from PHIL 2500-2999.
4. For internal transfers from SFS only: PHIL 1900 followed by any course PHIL 2000-2999.

No course at the 3000-level or above may be used to fulfill the Core requirement in philosophy. All courses at the 3000-level or above have a prerequisite of two core courses in philosophy.

PHIL 1101 Intro to Environmental Ethics is an acceptable substitute for PHIL 1100; students who begin with PHIL 1101 may fulfill the second half of the requirement with any course numbered PHIL 2500-2999.

Theology and Religious Studies

Problem of God (THEO 1000) and a second course in Theology and Religious Studies (numbered THEO 1100-3999) fulfill the Theology and Religious Studies requirement. Introduction to Biblical Literature (THEO 1100) may be substituted for Problem of God or taken as the second course. Transfer students are exempt from the Problem of God requirement and may select any two courses in Theology and Religious Studies to fulfill this requirement.

Writing

Every student in the College of Arts & Sciences will take one writing course, WRIT 1150 Writing and Culture Seminar, that provides students with opportunities to connect their writing with critical reading and thinking, inquiry, and analysis.

The second half of the Writing Core is an intensive writing experience located within the student's chosen major, embedded within the requirements as determined by that program. The Integrated Writing requirement will prepare students to use the relevant forms, styles, and conventions of their chosen area(s) of study. Because writing reflects ways of thinking in academic practice, attention to writing in the major will enhance the student's learning of concepts, materials, and methods in their fields. Each major's Integrated Writing requirement is established by the department in order to express the unique conventions and practices of the discipline.

Humanities: Arts, Literature, Music, & Culture

Every student in the College of Arts & Sciences will take one course in the Humanities: Arts, Literature, Music, & Culture. Courses fulfilling this requirement are identified in the course schedule with the "Core:HALM-Hum,Art,Lit,Mus,&Med" attribute in the Schedule of Classes (https://schedule.georgetown.edu/).

Quantitative Reasoning and Data Literacy

Every student in the College of Arts & Sciences will take one course focused on Quantitative Reasoning and Data Literacy (QRDL). These courses are tagged with the "Core:Quant Reasng & Data Ltrcy" attribute in the Schedule of Classes.

Science For All

Every student in the College of Arts & Sciences will take one course to satisfy the Science for All requirement. These courses, identified by the "Science for All" attribute in the Schedule of Classes and varying by semester, aim to illustrate, in the context of a scientific discipline, how scientific understanding is developed, tested, and revised. Science For All courses will help and encourage students to understand better the significant role that science plays in their daily lives, and will include examples of the use of scientific methods in addressing complex social problems and of the ethical issues that science can raise.

Pathways to Social Justice

All students in the College of Arts & Sciences will take CPSJ 1000[1] , the required one-credit University Seminar in Race, Power, and Justice at GU. Additionally, all students in the College will take two "overlay" courses tagged with the "Core: Pthways to Social Justice" attribute in the Schedule of Classes. Because the second half of the PSJ requirement is an overlay requirement, these two courses may also fulfill other core requirements.

[1] Note: This 1-credit course is offered twice each semester, and has a different number in each part of term: CPSJ 1000 in the first half of the fall semester; CPSJ 1001 in the second half of the fall semester; CPSJ 1002 in the first half of the spring semester; and CPSJ 1003 in the second half of the spring semester.

The College Core

The College Core supplements the University Core with a First-Year Seminar requirement and additional requirements in History, Social Science, and Language. These modes of inquiry and domains of knowledge are essential to our liberal arts curriculum and the formation of graduates of the College. See below for the specific ways in which students fulfill each of these three requirements.

- First-Year Seminar: 1 Course[1]
- History: 2 Courses
- Social Science: 2 Courses[2]
- Language: mastery of a second language through the intermediate level[3]

[1] The First-Year Seminar is an "overlay" requirement, which means that courses that fulfill the FYS requirement will also fulfill another core requirement.
[2] The Social Science requirement is waived for students pursuing a B.S. degree in certain science majors; see below for specifics.
[3] The number of courses and credits required to reach intermediate proficiency varies. Students beginning in a new language can fulfill the requirement in as few as 12 or as many as 24 credits.

First-Year Seminar

The First-Year Seminar (FYS) is a small, discussion-based course designed to introduce students to the intellectual community of the College and model the habits of mind central to a Jesuit education: rigorous inquiry, ethical reflection, and engaged dialogue.

All first-year students in the College of Arts & Sciences are required to take a FYS course. The majority of students will take the FYS in the fall semester, and will be pre-enrolled in a FYS based on their expressed interest. A smaller number of students, primarily those with a declared major in the sciences, will fulfill the FYS requirement in the spring

semester of their first year. Note: transfer students are exempt from the FYS requirement.

Because the FYS requirement is an “overlay” requirement, each FYS will also fulfill at least one additional core requirement.

History

The study of history is one of the best ways to challenge one’s ideas and assumptions about the world. Knowledge of history accomplishes this objective because it consists of the integrated study of all elements of the human experience as they change over time. The core requirement in History allows students to explore changes and continuities over time and to engage with the discipline of history as an evidence-based, interpretive, and analytical approach to research and knowledge.

The requirement consists of two courses, for which there is a menu of choices. One, **the survey,** covers the history of significant world regions over long time spans. This class offers students access to transnational and cross-cultural developments, raising their awareness of global themes and issues and leading them to examine the interaction of diverse cultures and groups. The vast geographic scope and long time spans covered in these courses also give students insight into the deep roots of contemporary globalization.

The other required course, HIST 1099, exposes students to the many components of the discipline of history through focused study of particular historical events, periods or themes. This course also leads students to consider questions of historical sources, analysis, and writing through focused study of specific developments and contexts.

All required History courses feature regular small-group discussion, through which students familiarize themselves with history as an analytical tool. In addition to engaged participation in discussions of primary and secondary sources, the courses also include substantive writing assignments. Altogether the courses thus help students hone their critical reading and writing skills, develop their ability to examine evidence, and improve their capacity for verbal and written argument.

History Core courses therefore both contribute to raising students into informed, thoughtful, and active modern citizens, and provide them with effective, useful skill sets for any career field.

To review: all students in the College are required to complete two one-semester courses in History: One broad survey (HIST 1100-1999) with linked discussion section; and one semester of HIST 1099 **(note:** HIST 1099 **has to be fulfilled at Georgetown and cannot be transferred).**

Students with advanced credit (e.g., AP or IB credit) in History may be able to fulfill the core requirement differently. See the Advanced Credit (https://bulletin.georgetown.edu/admissions/advanced-credit/) section of this Bulletin for full information.

Social Science

Social science is the systematic investigation of human society, including its cultural, economic, educational, governmental, and linguistic structures. Some approaches to social science are quantitative or experimental, while others are observational and interpretive; all examine the ways people think and act as members of social networks, how those networks function as complex systems, and how those systems in turn affect individual lives. Critical study of these familiar structures helps us question preconceptions and biases, guides us in examining the structures and institutions we take for granted, and leads us to greater understanding of the ways the world is organized.

All students except those majoring in Biochemistry, Biological Physics (B.S. only), Biology, Biology of Global Health, Chemistry, Environmental Biology, Neurobiology, or Physics (B.S. only), satisfy their social science requirement by taking two courses from one of the following departments: Anthropology, Economics, Government, Linguistics, Psychology, Public Policy, or Sociology. Note that students may not fulfill the requirement with one course each in two different disciplines; the requirement is two courses in the same discipline/department.

In addition to courses offered by the Linguistics department, certain post-advanced language courses with special focus on linguistics (e.g., CHIN 2101 Intro to Chinese Linguistics; FREN 3595 Making Sense of Language; SPAN 3210 Intro to Spanish Linguistics) may count toward the social science requirement when paired with a Linguistics course.

Language

The study of a language, literature, and culture other than one’s own enables a better understanding of the world. Language learning broadens horizons, expands minds, and enhances professional competence and personal engagement in a globalized world.

To be an effective cross-cultural communicator requires not only language proficiency, but awareness of literary and cultural traditions as well. Understanding language in all its forms, styles, and uses leads to more authentic relationships among diverse peoples.

All students in the College must study a second language (ancient or modern) through the intermediate level. During New Student Orientation, placement exams are offered in most languages. Students who do not place above the intermediate level of a language must fulfill the requirement by completing language coursework through the intermediate level. Please note that the number of courses required varies depending on the language family* and the intensity of instruction.

*In general, students must complete through the 12th credit of an Indo-European language or the 24th credit of other languages. Given the great diversity of languages, and the distinctness of their structures, challenges, and pedagogies, there are exceptions. As such, for languages routinely offered at Georgetown, the College’s language requirement is satisfied by completing the specific “exit course” listed below:

Code	Title	Credits
ARAB 1112	Intens 2nd Lv Mod Stnd Arab II	6
CHIN 1512	Intens Second Lev Chinese II	6
or CHIN 1513	Intens 2nd Lev Chin:Adv Beginr	
FREN 1502	Intermediate French II	3
or FREN 1511	Intensive Intermediate French	
GERM 1502	Interm Germ II: Exper Germ	3
or GERM 1511	Intens Interm Germany	
CLSG 1511	Intermediate Greek	3,4
GREE 1511	Second Level Modern Greek I	3
HEBR 2002	Interm Modern Hebrew II	3
ITAL 1511	Ital Lang & Cult: Interm.	6
JAPN 1512	Intens Second Lev Japanese II	6

KREN 1512	Intens Second Lev Korean II	6
CLSL 1511	Intermediate Latin	3,4
PERS 1012	Intensive 1st Level Persian II	5,6
PLSH 1502	Intermediate Polish II	3
PORT 1500	Accelerated Portuguese	3
RUSS 1012	Intens First Level Russian II	6
SPAN 1522	Intermediate Spanish II	3
or SPAN 1532	Intensive Intermediate Spanish	
TURK 1502	Intermediate Turkish II	3

Students are strongly urged to complete the language requirement no later than the end of their sophomore year.

Please note that credit can only be earned once for language study at a given level; the College does not grant credit when levels of instruction are repeated. Language placement tests are recommended for any student who has begun language study elsewhere, whether high school, prior college, etc.

Students with advanced proficiency in a language not offered at Georgetown should contact their advising dean to inquire about the possibility of arranging a placement test in that language. In many cases, students will be referred to the American Council on the Teaching of Foreign Languages (ACTFL) to certify proficiency in languages not taught on campus.

Note: In general, students are expected to fulfill core requirements at Georgetown. When appropriate, students may receive prior approval from the Dean's Office to complete a core course away (e.g., study abroad or summer school). Certain requirements (e.g., HALM, SFA) as well as some specific courses (e.g., HIST 1099) must be completed at Georgetown. Additionally, one half of any two-course core requirement must be completed at Georgetown.

For more information about how advanced credit applies to core curriculum requirements, see the Advanced Credit (https://bulletin.georgetown.edu/admissions/advanced-credit/) section of this Bulletin.

Georgetown Core Curriculum

The Georgetown Core Curriculum (Georgetown Core) is a distinctive expression of Georgetown University's identity as a student-centered research university rooted in the Jesuit and Catholic tradition. The Georgetown Core is a two-tiered program. The first tier – the "shared core" – has been created and approved by the Main Campus Core Curriculum Committee and is shared by all undergraduates as a common core experience. The second tier of the requirement – the "school-specific core" – is designed and determined by each of the undergraduate schools, embodying the shared learning goals of the university Core while furthering the specific mission and tradition of each school. Both the shared and school-specific cores change over time, balancing the traditional ethos of a liberal arts education with the changing needs of our students in a changing world. Ultimately, it is the hope that the entirety of a Georgetown education – the cores, majors and minors, and electives – will lead students to embody as life-long habits the goals described in the Georgetown Core Curriculum Learning Goals (https://bulletin.georgetown.edu/academics/undergraduate-regulations/georgetown-core-curriculum-requirements/georgetown-core-curriculum-goals/).

More information about the Georgetown Core Curriculum can be found on the Provost's Core Curriculum website (https://provost.georgetown.edu/core-curriculum#University%20Core%20Requirements).

Georgetown Shared Core Requirements

The core requirements that form the first tier, the common experience across the University, are outlined below. Georgetown courses fulfilling each of these requirements are designated "Core: [specific requirement]" in the Attributes in the Schedule of Classes (https://schedule.georgetown.edu/).

Philosophy – 2 Courses

Through the Core, the Philosophy Department is committed to providing courses that promote students' personal growth as human beings in search of meaningful lives, foster their development as responsible citizens, and offer effective introductions to the discipline of philosophy. The learning goals shared by courses in the Philosophy Core are:

- Understand what philosophy is, how it differs from other academic disciplines, and what its primary areas of inquiry are.
- Understand and construct arguments.
- Describe and analyze complex problems.
- Read, write and speak effectively.
- Engage critically and constructively with moral problems and decisions.
- Apply philosophical analysis, argumentation, and critical reflection to the study of other disciplines.

Please refer to each school/college curriculum for specific courses that will fulfill this requirement.

Theology and Religious Studies – 2 Courses

Through the Core, the Theology and Religious Studies Department is committed to fostering in students a critically appreciative awareness of the religious dimension of human existence, and to assisting students in reflecting upon their own experience and understanding in that enlarged context. The first course provides this foundation while the second course allows students to develop their critical awareness by applying it to a particular area of interest in religion or theology.

The learning goals shared by courses in the Theology and Religious Studies Core are:

- To consider reflectively your relationship to the world, your fellow humans, and God.
- To foster a critically appreciative awareness of the religious dimension of human existence.
- To assist you in reflecting upon your own experience and understanding in that enlarged context.
- To develop your critical awareness by applying it to a particular area of interest in religion or theology.

Problem of God[1] (THEO 1000) and one Theology and Religious Studies elective fulfill the Theology and Religious Studies requirement. Introduction to Biblical Literature (THEO 1100) may be substituted for Problem of God or may be used as an intermediate level elective.

[1] Transfer students are exempt from the Problem of God requirement and may select any two intermediate level courses, including

Introduction to Biblical Literature, to fulfill the core requirement in Theology & Religious Studies.

Writing – 2 Courses

The writing requirement provides students with opportunities to connect their writing with critical reading and thinking, inquiry, and analysis. The Writing and Culture Seminar, WRIT 1150, approaches writing through three interrelated frameworks: writing as a tool for inquiry, writing as a process, and practice writing in different rhetorical situations. Each section focuses on a cultural theme, with readings and assignments that engage students with compelling questions and problems. Seminar readings provide texts for analysis as well as models and motives for student writing. Students are encouraged to complete this course during their first year at Georgetown. The learning goals shared by different sections in the Writing and Culture Seminar are:

- Experiment with diverse strategies for planning, drafting, and revising writing.
- Adapt writing to respond to, engage, and persuade audiences.
- Employ rhetorical strategies for analyzing, designing, and communicating in writing and other forms of media.
- Engage in writing as a form of thinking, inquiry, and learning.

The second half of the Writing Core is an intensive writing experience located within the student's chosen major, embedded within the requirements as determined by that program. Each major's Integrated Writing requirement is established by the department or program in order to express the unique conventions and practices of the discipline. The learning goals shared by courses in the Integrated Writing Core are:

- To prepare students to use the relevant forms, styles, and conventions of writing within their chosen major(s).
- To employ writing as a method to enhance students' learning of concepts, materials, and methods in their major.

Courses fulfilling this requirement are identified within each major.

Humanities: Art, Literature, Music, and Media (HALM) – 1 Course

(Formerly Humanities: Art, Literature and Culture (HALC))

The Humanities: Art, Literature, Music, and Media (HALM) requirement serves to deepen students' understanding and experience of a range of creative media representing cultural expressions from various historical periods and world regions, from the local to the global.

Through reading, listening, viewing, analyzing, writing, and/or creative practice, students acquire the intellectual and practical tools to interpret human experiences portrayed in the arts, literature, music, and media.

HALM Learning Goals:

- Understand how art, literature, music and/or media have historically shaped and been shaped by cultures.
- Develop generative habits of mind and exercise critical thinking skills for a world in flux: openness, resilience, curiosity, creativity, imagination.
- Activate knowledge through creative, analytical, and/or critical approaches in individual, collaborative, and/or public-facing projects.

HALM courses must be Georgetown University courses and cannot be fulfilled by transfer credits; they must be 3-credit courses. Courses that can fulfill other Core requirements (such as HIST, PHIL, THEO) are ineligible.

In 2026-27, the older "HALC" designation (Humanities: Arts, Literature, and Culture) will be replaced with HALM (Humanities: Arts, Literature, Music and Media). For this academic year, courses with the designation will be tagged with both HALC and HALM. In Fall 2027, the tag HALC will be retired in favor of HALM.

Science For All – 1 Course

The natural sciences, and the technologies that they enable, are woven deeply into the fabric of our lives and are central to many of the important political and social challenges that we face. They are also pinnacles of intellectual accomplishment in humanity's ancient and ongoing quest to understand the world in which we live. Thus we believe that to function as liberally educated, ethically responsible citizens, as stewards of the planet, and as effective leaders, all Georgetown students should understand scientific modes of thought and concepts, both in the abstract and as they are exemplified in at least one major area of scientific inquiry. The Science For All (SFA) Core requirement is grounded in these beliefs. The learning goals shared by courses in the Science for All Core are:

- To understand the basic principles and some current research challenges of one or more areas of science.
- To understand science as a set of methods of inquiry that involve forming and testing hypotheses through the analysis of quantitative and qualitative data.
- To consume and interpret scientific information with critical understanding of the balance of certainty and uncertainty that research findings inevitably reflect.

Quantitative Reasoning and Data Literacy – 1 Course

This requirement applies only to students in the class of 2028 and later.

The Quantitative Reasoning and Data Literacy (QRDL) requirement will help students learn to understand how real-world interpretation of data progresses from a set of numbers, frequently incomplete and with measurement errors, to a visual distillation that clearly conveys meaning. While mathematics and statistics provide a necessary foundation for quantitative reasoning and data literacy, the power of pure mathematics lies in its abstraction. In contrast, QRDL emphasizes a distinctive variety of concrete contexts and applications. The learning goals shared by courses in the Quantitative Reasoning and Data Literacy Core are:

- To build a quantitative toolbox that allows students to become comfortable performing and/or evaluating quantitative analyses.
- To translate and make meaning of data and quantitative analyses as they apply to complex problems.
- To effectively communicate statistical methods and results both visually and textually to a diversity of audiences with considerations to contextual, social, or ethical issues.

Engaging Diversity/Pathways to Social Justice

For students in the class of 2025, 2026, or 2027

Engaging Diversity (2 courses)

All Georgetown students are required to take two Engaging Diversity courses as overlays, meaning that the courses may count toward another degree requirement (Core, major, or minor). One of these courses must be labeled with a “Core: Diversity Domestic” attribute and one must be labeled with a “Core: Diversity Global” attribute.

In courses designated as fulfilling a diversity requirement, students will engage with different cultures, beliefs, and ideas. These courses will explore conditions that contribute to unequal access and influence. Finally, these courses should enable students to reflect on their own identities as they also deepen their understanding of the experience of others. The learning goals shared by courses in the Engaging Diversity Core are:

- To prepare students to be responsible, reflective, self-aware and respectful global citizens through recognizing the plurality of human experience and engaging with different cultures, beliefs, and ideas.
- To be better able to appreciate and reflect upon how human diversity and human identities shape our experience and understanding of the world.

For students in the class of 2028 and later

Pathways to Social Justice (3 courses)

Georgetown’s Pathways to Social Justice (PSJ) curriculum prepares students to critically analyze historical and contemporary power differentials. By fulfilling the Pathways to Social Justice requirement, students will gain a better understanding of how social, political, geographic, economic, and other cultural factors shape experiences of the world, as well as how these factors contribute to marginalization and inequality. PSJ courses will also explore how communities have resisted marginalization, and will focus on axes of identity that have formed the basis for historical and contemporary marginalization and oppression, including race, gender, class, caste, disability, religion, sexual orientation, and gender identity.

A cornerstone of this requirement is the one-credit University Seminar in Race, Power, and Justice which is designed to ensure that every student at Georgetown develops a baseline vocabulary for discussing racial difference and marginalization. This seminar will provide the foundation for each student’s engagement with other PSJ-attributed “overlay” courses offered across Georgetown’s Main Campus and should be taken in the first year.

In addition to the required one-credit University Seminar in Race, Power, and Justice, the requirement also requires students to take two overlay courses (meaning that these courses may count toward another degree requirement, whether core, major, or minor). Eligible courses have the “Core: PSJ” attribute.

Each course in the Pathways to Social Justice Core works toward at least three of these shared priorities:

- Inclusive Scholarship
- Intersectional Approaches to Identity
- Historical Legacies of Inequality and Their Contemporary Impacts
- National, Regional, and Global Comparisons
- Imagining Justice

Plan of Study

Requirements for the A.B. in Computer Science, Ethics, and Society

Course	Title	Credits
First Year		
COSC 1020	Computer Science I	3
COSC 1030	Computer Science II	3
PHIL 2100	Intro to Tech/Ethics/Society	3
	Credits	**9**
Second Year		
MATH 1040	Probability and Statistics	4
COSC 1110	Math Methods for Comp Sci [1]	3
COSC 2010	Data Structures	3
	Credits	**10**
Third Year		
COSC 3020	Operating Systems	3
One course in Technology Law or Policy		3
One Philosophy (or Ethics) course in Digital Ethics		3
One COSC elective, which must be COSC courses numbered 2000 or higher, or an approved external elective (described below)		3
	Credits	**12**
Fourth Year		
One COSC elective		3
Two TES electives (totaling at least 6 credit hours), one of which may be substituted with a COSC elective		6
Senior Capstone in Tech, Ethics, and Society		3
	Credits	**12**
	Total Credits	**43**

[1] Students pursuing a major or minor in mathematics who take Introduction to Proofs and Problem Solving (MATH 2800) may elect to substitute one COSC elective for COSC 1110.

A list of the approved ethics-related electives and philosophy courses that satisfy the above requirements is maintained on the program website.

Related Programs

- Computer Science Minor (https://bulletin.georgetown.edu/programs/computer-science-minor/)
- Computer Science, AB (https://bulletin.georgetown.edu/programs/computer-science-ab/)
- Computer Science, BS (https://bulletin.georgetown.edu/programs/computer-science-bs/)
- Computer Science, MS (https://bulletin.georgetown.edu/programs/computer-science-ms/)
- Computer Science, PHD (https://bulletin.georgetown.edu/programs/computer-science-phd/)
- Post-Baccalaureate Computer Science Certificate (https://bulletin.georgetown.edu/programs/postbaccalaureate-computer-science-undergraduate-certificate/)