

**Manhattanville in West Harlem Implementation Plan Report
October 15, 2021 Submission**

Declaration Reference and Key Data

Obligation Section Number: **5.07(c)(ix)**

Obligation Title: **Availability of Faculty**

Obligation Page Number: **54**

Obligation Trigger: **When Upper Level Students Matriculate**

Obligation Start Date: **Beginning of 2012-2013 Academic Year**

Obligation End Date: **End of 2036-2037 Academic Year (25 Years from Commencement)**

Obligation Status: **In Compliance**

Obligation: Innovation/Changed Conditions

In accordance with the Declaration of Covenants and Restrictions Section 5.08, Obligation 5.07 (c)(ix) is modified to clarify the obligation. In general, the scope of services to be provided has not been changed. Additionally, the obligation in Section 5.07(c)(viii) New Public Middle and High School for Math, Science and Engineering that focuses on curriculum support from Columbia Faculty has been moved to this obligation for clarity of faculty engagement. Empire State Development and Columbia University agreed to this modification on November 28, 2018.

Modified Language:

Availability of Faculty. Columbia shall provide curriculum support to the faculty of Columbia Secondary School created in accordance with Section 5.07(c)(viii) to ensure the highest level of education in math, science and engineering, and continuing for a 25 year period from May 20, 2009. This portion of the commitment will end in 2034.

Commencing with the academic year in which the School matriculates upper level students eligible for competing in regional and national math, science and engineering competitions, CU shall endeavor in good faith to make its faculty from existing campuses available to upper level students from the School interested in competing in regional and national math, science and engineering competitions. As the Project Site is developed, CU shall endeavor in good faith to make its faculty from the Project Site available to upper level students at the School interested in competing in regional and national math, science and engineering competitions. Columbia shall provide curriculum support to the faculty of the new school to ensure the highest level of education in math, science and engineering, and continuing for a 25 year period from commencement.

Evidence of Compliance

1. Annual report

Columbia University's Implementation Plan and all supporting documentation are made available on the Columbia Neighbors Webpage at <https://neighbors.columbia.edu/content/community-commitments>.

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EOC Checklist for Obligation 5.07(c)(ix):

Please check to verify EOC items submitted for review.

- 1. Annual report

Monitor's Notes / Comments:

Status:

Please check to indicate the status of Obligation 5.07(c)(ix):

- In Compliance
- In Progress
- Not In Compliance
- Not Triggered

COLUMBIA SECONDARY SCHOOL for Math, Science, & Engineering

425 West 123rd Street, New York, NY 10027



A Public School, Community, and University Partnership

Challenging Academics – A Passion for Reason and Knowledge – Strength in Diversity

Memorandum

To: [REDACTED] Provost
From: Miriam Nightengale, Principal *mykel*
Re: Columbia University/Columbia Secondary School Staff and Student Interactions
Updated: September 30, 2021

Columbia Secondary School for Math, Science, and Engineering (CSS-MSE) opened in 2007 and has been providing the community with an excellent public secondary school (grades 6–12) option for over a decade. Based on feedback about the school's needs and priorities from my staff and our leadership team, the University has continuously supported CSS-MSE and its students through access to the expertise of Columbia's faculty and to campus facilities.

This report describes the projects and programs through which CSS-MSE accessed Columbia's faculty and campus resources from September 1, 2020 through August 31, 2021. As is noted in the report, most are ongoing. While Columbia's obligations under the *Availability of Faculty* and *Availability of Facilities* sections of the Declaration began in 2012, CSS-MSE's interactions with Columbia's faculty began as early as 2007.

In addition to the other projects and programs noted in this report, CSS-MSE upper-level students access Columbia University's libraries, computing facilities, and other academic support facilities and services while taking courses at the University. This program, administered by Columbia's School of Professional Studies and described in more detail in this report, benefits our students and staff by exposing them to high-quality research databases and computing facilities on Columbia's Morningside campus. CSS-MSE students who are enrolled in classes at Columbia have the support and guidance of their instructors and classmates and have demonstrated the maturity and responsibility needed to successfully navigate a university campus.

In addition to the campus experience and access enjoyed by students who are taking courses, these and other students also visit the campus under the supervision of CSS-MSE teachers in collaboration with Columbia's administrative staff and academic faculty for a variety of other projects and programs, as also described herein.

Of course, many of this year's programs were changed by the COVID-19 pandemic. Instruction was entirely virtual this academic year, through the summer term. Whenever possible, programs and access to benefits continued remotely.

<u>University faculty, instructor, or staff member:</u>	[REDACTED]
<u>School, department, or unit:</u>	Fu Foundation School of Engineering and Applied Science (SEAS)
<u>CSS-MSE students or staff member:</u>	[REDACTED]
<u>Project/purpose:</u>	The E.N.G. Program, now in its seventh year of operation, is an intensive 6-week summer research experience for high school students. It also includes an intensive research skills curriculum taught by post-doctorate researchers, oral presentations and participation at the summer research poster symposium, in addition to a college readiness component and the hands-on research experience. Each year the program evolves a bit and summer 2019 introduced new components, including collaboration with other Columbia Secondary School partner programs like BRAINYAC. The program also follows a "tiered mentoring" format, which structurally incorporates opportunities for high school students to interact with members of the research team at all levels. This format has a range of benefits for students and professionals alike. For this program, tiered mentorship includes high school, undergraduate, graduate, and postdoc researchers, as well as the faculty members; each member of the group represents a unique educational or professional level. In addition to the benefits of mentorship, high school students receive the opportunity to publish their research in an academic journal, present their research at the Columbia Undergraduate Research Symposium, and earn a letter of recommendation from their principal investigator for college admissions. Students are also eligible to continue their research during the academic year.
<u>Outreach to students:</u>	Identification of potential participants and outreach to students is conducted by CSS-MSE faculty and administration. Columbia Engineering Outreach Programs team also holds info sessions at CSS-MSE.
<u>Process by which students access benefit:</u>	CSS-MSE faculty members facilitate students' participation in the program as part of the ongoing collaboration with CU faculty. Students submit applications individually.
<u>Time period:</u>	Ongoing

<u>University faculty, instructor, or staff member:</u>	Staff: [REDACTED] Faculty: [REDACTED]
<u>School, department, or unit:</u>	Institutes: Zuckerman Institute Centers: Center for Science & Society Departments: Biomedical Engineering, Electrical Engineering, Genetics & Development, Pediatrics, Philosophy, Psychiatry, Psychology, Neuroscience
<u>CSS-MSE students or staff member:</u>	Staff: [REDACTED] Five CSSMSE students in grades 10 through 12
<u>Project/purpose:</u>	CSS-MSE worked with Columbia's Zuckerman Institute to include CSS-MSE students in BRAINYAC (Brain Research Internships in New York at Columbia). BRAINYAC is a program for students with an interest in biomedical - specifically neuroscience - research. The program runs from January - August of each year. Students learn basic neuroscience concepts and laboratory skills which prepare them for a seven-week mentored science research experience in Columbia University research laboratories. Students receive a stipend for their participation and produce a poster that they present to scientists and family members at the end of the summer. The 2020-2021 program was virtual due to the COVID-19 pandemic.
<u>Outreach to students:</u>	Identification of potential participants and outreach to students is conducted by BRAINYAC program staff in collaboration with CSS-MSE faculty and administration.
<u>Process by which students access benefit:</u>	CSS-MSE faculty members facilitate students' participation in the program as part of the ongoing collaboration with CU faculty. BRAINYAC program staff facilitate an information session for interested CSS-MSE students to learn more about the program and its application process.
<u>Time period:</u>	Ongoing

<u>University faculty, instructor, or staff member:</u>	[REDACTED], Associate Director of Admissions
<u>School, department, or unit:</u>	Undergraduate Admissions and Financial Aid
<u>CSS-MSE students or staff member:</u>	[REDACTED]
<u>Project/purpose:</u>	CU Office of Admissions designates guest speakers to address CSS-MSE families during Family College Night for families and students at CSS-MSE.
<u>Outreach to students:</u>	Students are invited to attend the meeting with their families by CSS-MSE staff via email, class announcements and letters home.
<u>Process by which students access benefit:</u>	Students attend scheduled college-oriented events
<u>Time period:</u>	Fall 2020 (October 8, November 17)

<u>University faculty, instructor, or staff member:</u>	[REDACTED]
<u>School, department, or unit:</u>	Office of the Provost
<u>CSS-MSE students or staff member:</u>	[REDACTED]
<u>Project/purpose:</u>	Continue supporting existing admissions structures for CSS-MSE students to enroll in the University's School of Professional Studies (SPS) through meetings and calls with SPS and CSS-MSE staff as needed. Continue providing outreach and introductions to University departments and promoting CSS-MSE throughout the University.
<u>Outreach to students:</u>	Varies by project
<u>Process by which students access benefit:</u>	Varies by project
<u>Time period:</u>	Ongoing

<u>University faculty, instructor, or staff member:</u>	[REDACTED]
<u>School, department, or unit:</u>	School of Professional Studies
<u>CSS-MSE students or staff member:</u>	[REDACTED]
<u>Project/purpose:</u>	Facilitating registration of CSS-MSE students in Columbia classes, including outreach to University faculty and staff, refining a system to vet courses to ensure that they are suitable for CSS-MSE students, creating and delivering orientations regarding CSS-MSE student registration and access to CU resources.
<u>Outreach to students:</u>	CSS-MSE administration and faculty identify students prepared for college-level coursework and independence and select student participants through a rigorous application and review process. CSS students also submit a CU Pre-College application to ensure completeness and accurate and timely account setup. CSS-MSE administration and faculty work with students to chose classes that are of interest and support their learning.
<u>Process by which students access benefit:</u>	CSS-MSE administration and SPS staff finalize list of students each term. Students apply individually through the SPS application portal and their applications are reviewed for completeness by SPS Admissions. After their accounts are set up in the SPS system, students who are participating for the term receive instructions from CSS-MSE administrators about how to enroll. An in-person orientation is conducted for participating CSS-MSE students by SPS staff, including familiarizing them with the Morningside campus, getting their CUIDs, and visiting the Columbia Bookstore to get their books (which have been set aside for CSS-MSE students based on their courses). Once enrolled and oriented, CSS-MSE students begin attending their classes alongside, and indistinguishable from, other students in the class. CSS-MSE Administration oversee students' success and offer mentoring and tutoring opportunities when available to support students in their CU coursework. Students who take classes for credit are able to request a CU transcript following completion of their senior year, which can be submitted to colleges.
<u>Time period:</u>	Ongoing

<u>University faculty, instructor, or staff member:</u>	[REDACTED]
<u>School, department, or unit:</u>	Campus Services, Columbia University Bookstore, School of Professional Studies
<u>CSS-MSE students or staff member:</u>	All CSS-MSE students who are enrolled in CU courses through SPS; [REDACTED]
<u>Project/purpose:</u>	The Columbia University Bookstore, in conjunction with School of Professional Studies, has developed a streamlined process to facilitate CSS-MSE's acquisition of textbooks for the CU courses for which they are registered. This partnership was developed specifically for CSS-MSE students and is evaluated and improved each semester to ensure students have easy access to appropriate course materials.
<u>Outreach to students:</u>	CSS-MSE administration and faculty identify students prepared for college-level coursework and independence and work with them to chose classes that are of interest and support their learning.
<u>Process by which students access benefit:</u>	Once CSS-MSE students are enrolled in their chosen courses for the term, a list of their names and courses is sent by CSS-MSE administration to the Columbia Bookstore. The Bookstore sets aside all materials needed for the courses (except in the infrequent instance of something not being available there), and at the time of their orientation, CSS-MSE students visit the Bookstore, where they are shown the window at which they receive their books and told what to do in the case of a change in course or the need to pick up additional course materials. The Bookstore donates materials annually up to an amount that covers almost the entire cost of the students' books; the small remainder of expenses is covered by the school. Students do not incur any expenses from the Bookstore for required course books. Students return all hardcover and nonconsumable books after the completion of their CU semester.
<u>Time period:</u>	Ongoing

<u>University faculty, instructor, or staff member:</u>	[REDACTED]
<u>School, department, or unit:</u>	Hk Maker Lab/SEAS/ Department of Biomedical Engineering
<u>CSS-MSE students or staff member:</u>	[REDACTED], all CSS-MSE 12th grade students
<u>Project/purpose:</u>	The program, run by the non-profit organization HypotheKids, takes place in partnership with SEAS. Focusing on addressing a global health problem, students work in teams to prototype and test a biomedical device and develop an associated business plan. The program culminates in a pitch event to leading executives from the biomedical community. Winning projects may then be incubated using the state-of-the-art facilities at Harlem Biospace. Students then also have the opportunity to be placed in internships within New York City's biotech community. CSS-MSE students participated in this summer program, forming part of four teams that worked on prototypes of biomedical devices. Students also worked with their teams during the year to continue to develop and refine their device. Additional support and professional development regarding Engineering curriculum at CSS-MSE has additionally been provided by [REDACTED] (Hk Maker Lab Program Director) and [REDACTED] (Hk Maker Lab Program Coordinator).
<u>Outreach to students:</u>	HypotheKids program materials are distributed at CSS-MSE to all eligible students. All CSS-MSE students take part in the CSS-MSE 6th, 7th, 8th, 9th, and 12th grade Engineering program, which is continually reviewed and shaped by our partnership with the Hk team.
<u>Process by which students access benefit:</u>	Hk Maker Lab hosts an information session for interested CSS-MSE students. All CSS-MSE students are enrolled in Engineering.
<u>Time period:</u>	Ongoing

<u>University faculty, instructor, or staff member:</u>	[REDACTED]
<u>School, department, or unit:</u>	History Department, Department of East Asian Languages and Cultures, Libraries Administration
<u>CSS-MSE students or staff member:</u>	[REDACTED]
<u>Project/purpose:</u>	Faculty and graduate students in CU's History Department are engaged in a program with CSS-MSE's History faculty to support and improve the focus on research and writing in CSS-MSE's history curriculum and prepare students for college-level work. This past academic year, the program included the following elements: pairing graduate students with CSSMSE history teachers to assist 7th, 9th and 10th grade students and history teachers in developing research papers and topic outlines and in-class use of databases, with professional input on the state of the relevant field and seminal works; and establishing a tutoring program for regaining learning loss due to the pandemic.
<u>Outreach to students:</u>	The project was a mandatory component of 7th, 9th, and 10th grade coursework.
<u>Process by which students access benefit:</u>	CSS-MSE faculty members facilitated students' participation as part of the ongoing collaboration with CU faculty. Collaboration between CU and CSS-MSE faculty has facilitated enhancements to the CSS-MSE curriculum, affecting all students.
<u>Time period:</u>	Ongoing

<u>University faculty, instructor, or staff member:</u>	[REDACTED] SEAS outreach staff
<u>School, department, or unit:</u>	SEAS
<u>CSS-MSE students or staff member:</u>	CSS-MSE students, [REDACTED]
<u>Project/purpose:</u>	Throughout the year, CSS-MSE students prepare for and participate in the FIRST Robotics Competition, an annual national robotics competition for students in grades 9-12. The team meets on campus multiple times a week, working closely with peer team members, undergraduate mentors, and staff from the Mechanical Engineering Department, CSS-MSE students build and program robots and compete at the local and regional level. SEAS Outreach Programs hosts the FIRST competition kickoff event not only for CSS-MSE but also including other local teams each January. 2021 marked the 21th anniversary of the FIRST Robotics team at Columbia and there were several events to acknowledge and celebrate the occasion.
<u>Outreach to students:</u>	Identification of potential participants and outreach to students is conducted by CSS-MSE faculty and administration.
<u>Process by which students access benefit:</u>	CSS-MSE faculty members facilitate students' participation in the program as part of the ongoing collaboration with CU faculty.
<u>Time period:</u>	Ongoing

<u>University faculty, instructor, or staff member:</u>	Various
<u>School, department, or unit:</u>	Various
<u>CSS-MSE students or staff member:</u>	Available to CSS-MSE classroom teachers and certain full-time CSS-MSE employees
<u>Project/purpose:</u>	Taking graduate courses in specific specializations through CSS-MSE/CU tuition scholarship program to further pedagogical work at CSS-MSE
<u>Outreach to students:</u>	n/a
<u>Process by which students access benefit:</u>	n/a
<u>Time period:</u>	Ongoing

<u>University faculty, instructor, or staff member:</u>	[REDACTED]
<u>School, department, or unit:</u>	Lamont-Doherty Earth Observatory
<u>CSS-MSE students or staff member:</u>	All CSS-MSE students/families are invited
<u>Project/purpose:</u>	Students and families attended the Lamont-Doherty Earth Observatory Open House to participate in and observe experiments and exhibits by Columbia University earth science researchers.
<u>Outreach to students:</u>	Emails to the school
<u>Process by which students access benefit:</u>	CSS-MSE faculty members facilitated students' participation as part of the ongoing collaboration with CU faculty.
<u>Time period:</u>	October 2020

<u>University faculty, instructor, or staff member:</u>	[REDACTED]
<u>School, department, or unit:</u>	Lamont-Doherty Earth Observatory
<u>CSS-MSE students or staff member:</u>	[REDACTED]
<u>Project/purpose:</u>	CSS-MSE science faculty participated in Day on the Hudson professional development workshop.
<u>Outreach to students:</u>	n/a
<u>Process by which students access benefit:</u>	While students do not directly participate, the professional development opportunity has resulted in enhancements to the CSS-MSE curriculum, affecting all students.
<u>Time period:</u>	September 2020

<u>University faculty, instructor, or staff member:</u>	[REDACTED]
<u>School, department, or unit:</u>	Anthropology; Astronomy; Chinese; Computer Science; Dutch; Earth & Environmental Engineering; Earth & Environmental Sciences; French; History; Italian; Japanese; Korean; Mathematics; Middle East, South Asia & Africa; Music; Philosophy; Psychology; Statistics; Yiddish
<u>CSS-MSE students or staff member:</u>	44 CSS-MSE students [REDACTED]
<u>Project/purpose:</u>	In the fall 2020 term, 41 CSS-MSE students took courses for college credit at Columbia University, including 24 CSS-MSE students who were newly enrolled at Columbia. Students enroll through the School of Professional Studies and are provided with a student orientation and access to discounted textbooks at the Columbia University bookstore. Students have full access to Columbia instructors, including use of office hours if needed. Courses this semester included A Better Planet By Design; Calculus I, II, and III; Ear Training I and II; European Intellectual History; First Year Japanese; Introductory Computory Science and Programming; Science for Sustainable Development; Stars, Galaxies, and Cosmology; Statistical Thinking with Python; and Third Year Chinese.
<u>Outreach to students:</u>	CSS-MSE administration and faculty identify students prepared for college-level coursework and independence and work with them to chose classes that are of interest and support their learning. The program is well established at CSS-MSE and discussions about preparedness are a standard part of all CSS-MSE students' experiences.
<u>Process by which students access benefit:</u>	CSS-MSE administration and SPS staff finalize list of students each term, and after their accounts are set up in the SPS system, students who are participating for the term receive instructions from CSS-MSE administrators about how to enroll. An in-person orientation is conducted for participating CSS-MSE students by SPS staff, including familiarizing them with the Morningside campus, getting their CUIDs, and visiting the Columbia Bookstore to get their books (which have been set aside for CSS-MSE students based on their courses). Once enrolled and oriented, CSS-MSE students begin attending their classes alongside, and indistinguishable from, other students in the class.
<u>Time period:</u>	Fall 2020

<u>University faculty, instructor, or staff member:</u>	Various UEM staff
<u>School, department, or unit:</u>	University Events Management
<u>CSS-MSE students or staff member:</u>	[REDACTED] all CSS-MSE 6th grade students
<u>Project/purpose:</u>	As part of a unit on exploring the neighborhood, CSS-MSE 6th graders, led by teachers from CSS-MSE, conduct an annual Scavenger Hunt on the Columbia University campus. The purpose of the hunt is to familiarize the students with various buildings on the campus that they may use in later years at CSS-MSE, including the library, schools on the campus, campus layout, etc.
<u>Outreach to students:</u>	Participation in the project was a mandatory component of 6th grade coursework.
<u>Process by which students access benefit:</u>	CSS-MSE faculty members facilitate students' participation in the program as part of the ongoing collaboration with CU faculty. This unit was incorporated into the CSS-MSE 6th grade curriculum, affecting all 6th grade students.
<u>Time period:</u>	May 2021

<u>University faculty, instructor, or staff member:</u>	[REDACTED]
<u>School, department, or unit:</u>	Astronomy; Chemistry; Chinese; Dutch; Ecology, Evolution and Environmental Biology; Economics; French; History; Humanities; Italian; Japanese; Korean; Linguistics; Mathematics; Music; Political Science; Psychology; Statistics; Writing
<u>CSS-MSE students or staff member:</u>	74 CSS-MSE students
<u>Project/purpose:</u>	In the spring and summer 2021 terms, 52 CSS-MSE students took courses for college credit at Columbia university, including 14 CSS-MSE students who were newly enrolled at Columbia. Students enroll through the School of Professional Studies and are provided with a student orientation and access to discounted textbooks at the Columbia University bookstore. Students have full access to Columbia instructors, including use of office hours if needed. Courses these semesters included American Urban Politics; Calculus I, II, and III; College Prep Chemistry; Evolutionary Psychology; First Year Japanese II; Introduction to Statistics; Principles of Economics; The Science of Psychology; Third Year Chinese II; and Writing Children's Books.
<u>Outreach to students:</u>	CSS-MSE administration and faculty identify students prepared for college-level coursework and independence and work with them to choose classes that are of interest and support their learning. The program is well established at CSS-MSE and discussions about preparedness are a standard part of all CSS-MSE students' experience.
<u>Process by which students access benefit:</u>	CSS-MSE administration and SPS staff finalize list of students each term, and after their accounts are set up in the SPS system, students who are participating for the term receive instructions from CSS-MSE administrators about how to enroll. An in-person orientation is conducted for participating CSS-MSE students by SPS staff, including familiarizing them with the Morningside campus, getting their CUIDs, and visiting the Columbia Bookstore to get their books (which have been set aside for CSS-MSE students based on their courses). Once enrolled and oriented, CSS-MSE students begin attending their classes alongside, and indistinguishable from, other students in the class.
<u>Time period:</u>	Spring and Summer 2021 terms

<u>University faculty, instructor, or staff member:</u>	[REDACTED]
<u>School, department, or unit:</u>	School of Professional Studies
<u>CSS-MSE students or staff member:</u>	[REDACTED]; 20 CSSMSE students in 8th and 9th grades
<u>Project/purpose:</u>	Through SPS's Pre-College Immersion Program, CSSMSE students take Columbia non-credit courses and participate in extracurricular and co-curricular activities, including college preparedness programming, community outreach and awareness activities, and special lectures. At a course's conclusion, participants receive a Certification of Participation and an evaluation letter from the instructor.
<u>Outreach to students:</u>	Identification of potential participants and outreach to students is conducted by CSS-MSE faculty and administration.
<u>Process by which students access benefit:</u>	CSS-MSE faculty members facilitate students' participation in the program as part of the ongoing collaboration with CU faculty.
<u>Time period:</u>	Summer 2021

<u>University faculty, instructor, or staff member:</u>	[REDACTED]
<u>School, department, or unit:</u>	Tutoring and Learning Center of the Institute for Social and Economic Research and Policy
<u>CSS-MSE students or staff member:</u>	80–90 9th and 10th grade students
<u>Project/purpose:</u>	Through the Tutoring and Learning Center, Columbia and Barnard students offer online math tutoring to individual students and small groups. Sessions can include leadership activities, skill-building workshops, games, mentoring, and homework help.
<u>Outreach to students:</u>	Identification of potential participants and outreach to students is conducted by CSS-MSE faculty and administration.
<u>Process by which students access benefit:</u>	CSS-MSE faculty members facilitate students' participation in the program as part of the ongoing collaboration with CU faculty.
<u>Time period:</u>	Ongoing