

**Manhattanville in West Harlem Implementation Plan Report
October 15, 2024 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: Angela Olinto, Provost
From: Vikram Arora, Principal
Re: Columbia University/Columbia Secondary School Staff and Student Interactions
Updated: September 1st, 2024

Columbia Secondary School for Math, Science, and Engineering (CSSMSE) 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 CSSMSE 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 CSSMSE accessed Columbia’s faculty and campus resources from September 1, 2023 through August 31, 2024. 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, CSSMSE’s interactions with Columbia’s faculty began as early as 2007.

In addition to the other projects and programs noted in this report, CSSMSE upper-level students access Columbia University’s libraries, computing facilities, and other academic support facilities and services while taking both for-credit and pre-college courses at the University. These programs are administered by Columbia’s School of Professional Studies and described in more detail in this report. CSSMSE 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 CSSMSE teachers in collaboration with Columbia’s administrative staff and academic faculty for a variety of other projects and programs, as also described herein.

DocuSigned by:

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Vikram Arora, Principal

University faculty, instructor, or staff member:

[REDACTED]

School, department, or unit:

Fu Foundation School of Engineering and Applied Science (SEAS)

CSS-MSE students or staff member:

Two 12th-grade students; [REDACTED]

Project/purpose:

Engineering the Next Generation (ENG): Rising high school seniors match with engineering labs and research mentors and are supervised by faculty members. Program components include research, mentoring, college preparation, and presentation skills, as well as academic and professional workshops. Students are challenged with high-level academic expectations by both the researchers and undergraduate mentors. Participants must be at least 16 years of age in order to participate and are granted a stipend for their time in the program. ENG has now partnered with Professor [REDACTED] to provide students with a more structured experience through an Experiential Learning Bootcamp. The Center for Smart Streetscapes (CS3) will also provide students with lessons in the Foundation of Research.

Outreach to students:

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.

Process by which students access benefit:

CSS-MSE faculty members facilitate students' participation in the program as part of the ongoing collaboration with CU faculty. Students submit applications individually.

Time period:

July - August

University faculty, instructor, or staff member:

Varies

School, department, or unit:

Vagelos College of Physicians & Surgeons, Office of Diversity & Multicultural Affairs

CSS-MSE students or staff member:

Summer 2023: 1 student; Fall 2023 and Spring 2024: 3 students; Summer 2024 - 1 student; [REDACTED]

[REDACTED]

Project/purpose:

S-PREP is a free high school and college preparatory program for 7th - 12th grade students who are interested in a career in medicine or related STEM professions. The long-range objective is to increase the number of historically underrepresented and economically disadvantaged students prepared to enter college, and improve their participation rate in healthcare and STEM.

Outreach to students:

Identification of potential participants and outreach to students is conducted by CSS-MSE faculty and administration.

Process by which students access benefit:

CSS-MSE faculty members facilitate students' participation in the program as part of the ongoing collaboration with CU faculty. Students submit applications individually.

Time period:

Summer, Fall, Spring

University faculty, instructor, or staff member:

[REDACTED]

School, department, or unit:

Columbia Zuckerman Institute

CSS-MSE students or staff member:

4 CSS-MSE students in 11th grade; [REDACTED]

Project/purpose:

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. 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. BRAINYAC provides high-schoolers with an immersive, hands-on summer research experience in a Columbia laboratory. They emphasize opportunities to connect with real scientists, learn key skills required to work in a research environment, and become part of the Columbia University community.

Outreach to students:

Identification of potential participants and outreach to students is conducted by BRAINYAC program staff in collaboration with CSS-MSE faculty and administration.

Process by which students access benefit:

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.

Time period:

January - August

University faculty, instructor, or staff member:

[REDACTED]

School, department, or unit:

Office of the Provost

CSS-MSE students or staff member:

[REDACTED]

Project/purpose:

Provide outreach and introductions to University departments and promote CSS-MSE throughout the University based on needs raised by CSS-MSE.

Outreach to students:

n/a

Process by which students access benefit:

n/a

Time period:

Ongoing

University faculty, instructor, or staff member:

[REDACTED]

School, department, or unit:

School of Professional Studies (SPS)

CSS-MSE students or staff member:

Fall 2023, Spring 2024; [REDACTED]

Project/purpose:

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. Students are admitted and registered for college credit-bearing courses.

Outreach to students:

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 choose classes that are of interest and support their learning.

Process by which students access benefit:

CSS-MSE administration and SPS staff finalize the list of students each term. Students apply individually through the SPS application portal and their applications are reviewed for eligibility 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 other students in the class. CSS-MSE administration oversees students' success and offers 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.

Time period:

Ongoing

University faculty, instructor, or staff member:

[REDACTED]

CSS-MSE students or staff member:

[REDACTED]

Project/purpose:

Academic Year 2023-2024 was a year of transition and planning for Columbia and CSS-MSE history faculty, focused on developing programming for FY25 with a new emphasis on East Asian studies, made possible by grant funding through Columbia's Institute for Religion, Culture and Public Life (IRCPL) and WEAI (Weatherhead East Asian Institute). Two awards through Columbia's Arts and Sciences and applied for and won to support this project, which, starting in FY25, will introduce education and understanding about a region of the world that largely remains underexplored in many American high schools, particularly STEM-focused schools such as CSS-MSE. Some examples of what the new programming will offer: a Meet and Greet event at the start of the Academic year to facilitate networking opportunities for students, faculty, staff, CSS teachers, and representative students; a Pairing Mentorship program will allow 9th and 10th graders to be paired off with graduate students who will help provide assistance not only with research papers but also professional insights into relevant fields; organizing field trips to develop student interest in East Asia to prominent archives and cultural institutions within the city.

Outreach to students:

n/a

Process by which students access benefit:

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.

Time period:

2024

University faculty, instructor, or staff member:

Various

School, department, or unit:

Various

CSS-MSE students or staff member:

Available to CSS-MSE classroom teachers and certain full-time CSS-MSE employees

Project/purpose:

Taking graduate courses in specific specializations through CSS-MSE/CU tuition scholarship program to further pedagogical work at CSS-MSE

Outreach to students:

n/a

Process by which students access benefit:

n/a

Time period:

Ongoing

University faculty, instructor, or staff member:

[REDACTED]

School, department, or unit:

School of Professional Studies (SPS)

CSS-MSE students or staff member:

7 students for Fall 2023, 6 students for Spring 2024 - 9th and 10 graders; [REDACTED]

[REDACTED]

Project/purpose:

Through the School of Professional Studies's Pre-College Academic Year Weekend Program, CSS-MSE students take Columbia non-credit courses in the fall and spring terms 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. CSS-MSE students take the courses tuition-free.

Outreach to students:

Identification of potential participants and outreach to students is conducted by CSS-MSE faculty and administration.

Process by which students access benefit:

CSS-MSE faculty members facilitate students' participation in the program as part of the ongoing collaboration with CU faculty.

Time period:

Academic Year (Fall and Spring) - Ongoing

University faculty, instructor, or staff member:

[REDACTED]

School, department, or unit:

Columbia University, School of Professional Studies (SPS)

CSS-MSE students or staff member:

20 rising 10th and 11th grade students for Summer 2024; [REDACTED]

Project/purpose:

The Summer Immersion program is a program through which high school students in the 9th and 10th grades can apply to take pre-college, non-credit bearing courses at Columbia during the summer.

Outreach to students:

9th and 10th grade students that have a grade point average above 85% receive an invitation from CSS-MSE faculty to apply to take a summer immersion course. Students submit applications individually.

Process by which students access benefit:

Open to all 9th and 10th high school students with semester grades in every subject at 85% or higher. Submitted applications are reviewed by a CSS-SPS committee that includes CSS-MSE faculty. Attendance, punctuality, behavior in class, academic integrity, and maturity are all taken into account when reviewing a student's application.

Time period:

Summer

University faculty, instructor, or staff member:

[REDACTED]

CSS-MSE students or staff member:

All CSS-MSE students who are enrolled in CU courses through SPS; [REDACTED]

Project/purpose:

The Columbia University Bookstore, in conjunction with the 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.

Outreach to students:

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.

Process by which students access benefit:

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 \$5,000, an amount that covers almost the entire cost of the students' books. Any expenses above \$5,000 are covered by the school. Students do not incur any expenses from the Bookstore for required course books. Students return all hardcover and non-consumable books after the completion of their CU semester.

Time period:

Ongoing

University faculty, instructor, or staff member:

[REDACTED] Columbia Engineering students [REDACTED]

School, department, or unit:

Fu Foundation School of Engineering and Applied Science (SEAS)

CSS-MSE students or staff member:

34 students in 9th through 12th grades; [REDACTED]

Project/purpose:

FIRST Robotics: 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. Fu Foundation School of Engineering and Applied Science (SEAS) Outreach Programs hosts the FIRST competition kickoff event not only for CSS-MSE but also including other local teams each January. This year, under the guidance of SEAS faculty and staff, CSS-MSE launched its own team with 34 students from CSS participating in 2023-2024 and 6 students from Columbia Engineering serving as mentors.

Outreach to students:

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.

Process by which students access benefit:

CSS-MSE faculty members facilitate students' participation in the program as part of the ongoing collaboration with CU faculty. Students submit applications individually.

Time period:

Ongoing

University faculty, instructor, or staff member:

[REDACTED] (organizer) and multiple staff members

School, department, or unit:

Columbia University, Irving Medical Center

CSS-MSE students or staff member:

15 students across 10th through 12th grade; [REDACTED]

Project/purpose:

An information session is held with video presentation, panel discussion (former participants and members of the CUIMC community, inspiring students to consider careers in the health sciences through experiential discovery learning experiences and courses. For the observership, rising seniors shadow CUIMC professionals in different medical fields and at different stages of their careers and met to explore medical careers on site. Students connect with healthcare professionals and immerse themselves in different hospital environments including the operating room and research labs, learn key skills required to work in the medical community, and become part of the Columbia University community.

Outreach to students:

Identification of potential participants and outreach to students is conducted by CSS-MSE faculty and administration.

Process by which students access benefit:

CSS-MSE faculty members facilitate students' participation in the program as part of the ongoing collaboration with CU faculty. Students submit applications individually.

Time period:

Summer 2024

University faculty, instructor, or staff member:

[REDACTED] Senior Associate Director of Admissions

School, department, or unit:

Undergraduate Admissions and Financial Aid

CSS-MSE students or staff member:

11 juniors and seniors in fall 2023; 40 students in Spring 2024; [REDACTED]

Project/purpose:

Virtual sessions about academic programs, campus life, financial aid, admission process, and answers to any questions the students may have, are available for CSS-MSE families and students throughout the year. They may also participate in on-campus tours as well. This year, CU Undergraduate Admissions held a school visit at CSS-MSE in the fall.

Outreach to students:

Students are invited to register for information sessions and on-campus tours through email notifications from Undergraduate Admissions. Students and families are notified by CSS-MSE staff via email, class announcements and letters home regarding CU's school visits to CSS-MSE. CSS-MSE counselors are encouraged to connect families with Undergraduate Admissions representatives. Reps visited in Fall 2023 and met with 11 students, both juniors and seniors, and then participated in a college Fair that took place in Spring 2024, where the rep was able to meet with about 40 students and families from across all grades.

Process by which students access benefit:

Students attend scheduled college-oriented events

Time period:

Fall 2023 and Spring 2024

University faculty, instructor, or staff member:

[REDACTED]

School, department, or unit:

German; Social Psychology; Statistics; Chemistry; History; Mathematics

CSS-MSE students or staff member:

23 CSS-MSE students; [REDACTED]

Project/purpose:

In the fall 2023 term, 23 CSS-MSE students took courses for college credit at Columbia University, including 11 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 Abnormal Behavior, Ancient History, Calculus I, Elementary German, and Introduction to Statistics.

Outreach to students:

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 college preparedness are a standard part of all CSS-MSE students' experiences.

Process by which students access benefit:

CSS-MSE administration and SPS staff finalize the 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.

Time period:

Fall 2023

University faculty, instructor, or staff member:

[REDACTED]

School, department, or unit:

Economics; Mathematics; Social Psychology; Statistics, Ecology/Evolution/Environment, German, History

CSS-MSE students or staff member:

21 CSS-MSE students in Spring 2024, 8 CSS-MSE students in Summer 2024

Project/purpose:

In the spring and summer 2024 terms, 29 CSS-MSE students took courses for college credit at Columbia university, including 11 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 Linear Algebra, Principles of Economics, and History of the City of New York.

Outreach to students:

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 college preparedness are a standard part of all CSS-MSE students' experience.

Process by which students access benefit:

CSS-MSE administration and SPS staff finalize the 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.

Time period:

Spring and Summer 2024

University faculty, instructor, or staff member:

[REDACTED]

School, department, or unit:

Fu Foundation School of Engineering and Applied Science (SEAS)

CSS-MSE students or staff member:

5 students; [REDACTED]

Project/purpose:

SHAPE, Columbia Engineering's Summer High School Academic Program for Engineers, is a pre-college program for rising sophomores, juniors, seniors, and recent high school graduates. SHAPE is geared toward students with a curiosity for STEM: science, technology, engineering, and mathematics. Each 3-week session offers college-level, project-based courses in engineering taught by a diverse group of faculty at Columbia University. Students engage with peers and Columbia University faculty, staff, students, alumni, and industry partners through interactive programming, site visits, and workshops.

Outreach to students:

Identification of potential participants and outreach to students is conducted by CSS-MSE faculty and administration.

Process by which students access benefit:

CSS-MSE faculty members facilitate students' participation in the program as part of the ongoing collaboration with CU faculty.

Time period:

July and August 2024

University faculty, instructor, or staff member:

[REDACTED]

School, department, or unit:

Industrial Engineering and Operations Research (IEOR) Department at SEAS

CSS-MSE students or staff member:

15 students; [REDACTED]

Project/purpose:

The AI Lab at the Innovation Center for 8th through 12th grade students focuses on machine learning and artificial intelligence and had several opportunities for students for this school year. [REDACTED].

[REDACTED] worked with a group of CSS-MSE students in a hands-on AI Lab after school for six sessions this spring.

Outreach to students:

Identification of potential participants and outreach to students is conducted by CSS-MSE faculty and administration.

Process by which students access benefit:

CSS-MSE faculty members facilitate students' participation in the program as part of the ongoing collaboration with CU faculty.

Time period:

March to May 2024

University faculty, instructor, or staff member:

[REDACTED]

School, department, or unit:

Fu Foundation School of Engineering and Applied Science (SEAS)

CSS-MSE students or staff member:

16 students; high-school; [REDACTED]

Project/purpose:

Plasma Physics is a study of plasma physics for fusion energy. PhD students taking part in the plasma lab's outreach group, work on spreading awareness and knowledge of plasma physics and fusion. The main project they work on is a one-period, in-classroom workshop for middle and high school students that includes a presentation and interactive demonstrations: one focused on identifying plasma species based on their emission spectra, and another exploring properties of plasma with a plasma ball. This took place in June at CSS-MSE.

Outreach to students:

Identification of potential participants and outreach to students is conducted by CSS-MSE faculty and administration.

Process by which students access benefit:

CSS-MSE faculty members facilitate students' participation in the program as part of the ongoing collaboration with CU faculty.

Time period:

June 2024

University faculty, instructor, or staff member:

[REDACTED]

School, department, or unit:

SIPA, Center on Global Energy Policy, Women in Energy

CSS-MSE students or staff member:

116 students in 10th and 11th grade; [REDACTED]

Project/purpose:

To expose CSS students, particularly girls, to the energy sector so that those who are interested can ultimately pursue a career in energy or another STEM field. Students were invited to an Energy assembly was on 12/8/23 and then a nuclear energy workshop was on 5/15/24, during which a research scholar conducted an interactive presentation on nuclear energy.

Outreach to students:

Identification of potential participants and outreach to students is conducted by CSS-MSE faculty and administration.

Process by which students access benefit:

CSS-MSE faculty members facilitate students' participation in the program as part of the ongoing collaboration with CU faculty.

Time period:

Fall 2023 and Spring 2024