

**Manhattanville in West Harlem Implementation Plan Report  
October 15, 2019 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. Following this October 2019 report, all future annual reports will no longer include the original language and will contain only the modified language.

**Original Language:**

*Availability of Faculty.* 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. Such support shall continue for a 25-year period from commencement.

**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

**Manhattanville in West Harlem Implementation Plan Report  
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Columbia University's Implementation Plan and all supporting documentation are made available on the Community Services Webpage at <http://manhattanville.columbia.edu/community/benefits-and-amenities>.

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

Please check to verify EOC items submitted for review.

1. Annual report

**Monitor's Notes / Comments:**

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**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 123<sup>rd</sup> 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] Executive Vice Provost, Columbia University  
From: Miriam Nightengale, Principal *mgale*  
Re: Columbia University/Columbia Secondary School Staff and Student Interactions  
Updated: September 25, 2019

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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, 2018 through August 31, 2019. 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.

<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>	<p>Faculty member [REDACTED] Professor of Mechanical Engineering at the Fu Foundation School of Engineering and Applied Science, has been working closely with CSS-MSE for several years on the Engineering the Next Generation Program (E.N.G.), previously the Young Scholar's Summer Program. This program started as a smaller scale program for CSS-MSE students to develop hands-on lab experience in Columbia research laboratories and has developed into CSS-MSE's inclusion in a six-year National Science Foundation grant that resulted in the establishment of the MRSEC (Material Research Science and Engineering Center) at Columbia, which is under the direction of Professor Hone. This is the final year of the current MRSEC grant, and the reserach team is submitting a proposal to renew NSF support. CSS-MSE is an integral, long-term part of the program, and continues to be in consultation to enhance the CSS-MSE curriculum.</p> <p>The E.N.G. Program, now in its sixth 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.</p>
<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>	[REDACTED]
<u>School, department, or unit:</u>	Zuckerman Institute, Lomvardas Lab, Denny Lab, Kellendonk Lab, Bendesky Lab, Lotti Lab
<u>CSS-MSE students or staff member:</u>	[REDACTED]
<u>Project/purpose:</u>	CSS-MSE worked with Columbia's Zuckerman Institute to include seven CSS-MSE students in its BRAINYAC Program. The eight-month BRAINYAC Program has replaced the four week summer internship program that was hosted by Columbia in earlier years. BRAINYAC is a program for students with an interest in biomedical and specifically neuroscience research. Through the program, students learn basic neuroscience concepts and laboratory skills which prepare them for a seven-week science mentoring research experience in neuroscience laboratories in Morningside, Manhattanville, or Columbia University Medical Campus (CUMC) the following summer. Students receive a stipend for their participation.
<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]
<u>School, department, or unit:</u>	CU Teachers College, Cognitive Studies in Education
<u>CSS-MSE students or staff member:</u>	[REDACTED], CSS-MSE 9th and 10th grade students
<u>Project/purpose:</u>	Helping to design and implement research and action steps to reduce student anxiety around science and to encourage persistence through increasingly difficult materials. Work includes interviewing CSS-MSE students to determine attitudes around science and academic struggle, and the ongoing creation and modification of CSS-MSE curricular materials that support students' development of persistence and appreciation of the scientific inquiry process to problem-solve. This partnership resulted in the publishing of the article "Even Einstein Struggled" in the Spring 2016 issue of the Journal of the American Psychological Association, which detailed the findings of the research up to that point. As an extension to this project, CSS-MSE faculty participated in a summer workshop to create units of study that incorporate the findings from the student interviews and surveys into curricular materials.
<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>	[REDACTED]
<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 College Awareness and Preparation evenings 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>	Periodic evenings throughout the academic year

<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-MSE administration and faculty work with students to choose 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. 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 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 choose 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 Hk Maker Lab is an intensive six-week summer program to learn the foundations of engineering design. 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. Six CSS-MSE students participated in this summer program, forming part of four teams that worked on prototypes of biomedical devices. Two CSS-MSE students worked with their team 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-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>	Teachers College Department of Health and Behavior Studies, Laurie M. Tisch Center for Food, Nutrition, and Policy
<u>CSS-MSE students or staff member:</u>	[REDACTED], CSS-MSE students
<u>Project/purpose:</u>	Recruit and organize Teachers College student volunteers to support CSS-MSE programming related to the CSS-MSE Community Garden, including instruction on sustainable gardening techniques, plant maintenance, and poultry care. CSS-MSE has also partnered with the TC Zankel Fellowship Program for Environmental & Sustainability education to involve TC Zankel Fellows with Food/Garden education.
<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>	[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 CSS-MSE 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 a visit of 100 CSS-MSE 7th grade students to Butler Library, including a campus tour, a visit in the rare books collections, and a guided activity of locating and working with sources at the library.
<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. 2019 marked the 20th 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>	SEAS outreach staff
<u>School, department, or unit:</u>	SEAS
<u>CSS-MSE students or staff member:</u>	██████████
<u>Project/purpose:</u>	SEAS has adopted a process to match SEAS student volunteer tutors with local STEM teachers and students. Undergraduate students are matched with CSS-MSE 12th grade students to support their Capstone Engineering projects.
<u>Outreach to students:</u>	n/a
<u>Process by which students access benefit:</u>	CSS-MSE students collaborate with undergraduates studying engineering, enhancing their classroom studies of engineering.
<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>	██████████, SEAS students, outreach staff
<u>School, department, or unit:</u>	SEAS
<u>CSS-MSE students or staff member:</u>	██████████, CSS-MSE 11th grade students
<u>Project/purpose:</u>	CSS-MSE 11th grade students visited undergraduate engineering course presentations. Columbia Engineering Outreach Programs invited CSS-MSE to attend the Art of Engineering Design Expo highlighting SEAS freshmen student design projects. This visit reciprocates with SEAS undergraduate students visiting and tabling at the CSS-MSE Family STEM Night event to demonstrate and explain their Art of Engineering final design projects at that event
<u>Outreach to students:</u>	The observation of undergraduate presentations was a mandatory component of 11th 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.
<u>Time period:</u>	Ongoing

  

<u>University faculty, instructor, or staff member:</u>	Girls Who Code student leaders and SEAS Outreach staff
<u>School, department, or unit:</u>	SEAS
<u>CSS-MSE students or staff member:</u>	2-3 CSS-MSEMSE 9th and 10th grade students
<u>Project/purpose:</u>	Girls Who Code Saturday coding classes at beginning, intermediate, and advanced levels
<u>Outreach to students:</u>	This is an open application for any middle and high school girls. Outreach provides GWC school contacts to distribute the application to students.
<u>Process by which students access benefit:</u>	Students apply online and GWC student leaders review applications.
<u>Time period:</u>	Ongoing

  

<u>University faculty, instructor, or staff member:</u>	██████████
<u>School, department, or unit:</u>	Facilities and Operations (CUFO), Law School
<u>CSS-MSE students or staff member:</u>	██████████; over 75 CSS-MSE students work in the community garden at Amsterdam Avenue and West 119th Street each season
<u>Project/purpose:</u>	The garden is integrated into CSS-MSEMSE's elective program, in which many students participate each term. Facilities and Operations sponsored a Garden Work Day with Turner Construction, including several volunteers from Turner and Columbia. As part of a separate initiative, the Law School embedded garden work into its orientation program for first year Law students. Materials were provided by CUFO, and work started by the volunteers was completed by CSS-MSE student volunteers. CSS-MSE students also helped host the day with Law School student volunteers. Students work in the garden alongside Columbia community members on a regular basis.
<u>Outreach to students:</u>	Students receive emails, announcements, and other messaging about CSS-MSE garden events and work opportunities. Students have opportunity to participate in garden electives.
<u>Process by which students access benefit:</u>	Ongoing maintenance and specific projects in the community garden allow CSS-MSE students to interact directly with the Columbia community and extend their science studies into the natural world. Many students take part in garden electives and open garden hours.
<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>	3 CSS-MSEMSE 10th and 12th graders, [REDACTED]
<u>Project/purpose:</u>	To encourage student interest in STEM fields, students are presented with opportunities to engage with open-source data to solve real-life challenges within their community. Students are empowered not only to identify an issue that resonates with them within their community, but also to collaborate with a team of educators, data experts, industry professionals, and community groups to develop solutions to this issue through the use of STEM practices. In this year of the project, students build solutions to local community challenges. A network of STEM partners supports the student work through addressing a community challenge, working through the scientific method in an attempt to come up with solutions to address the identified challenge, using open-source data that is available to tailor potential solutions, and sharing their results with relevant community groups and industry partners.
<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 facilitated students' participation as part of the ongoing collaboration with CU faculty.
<u>Time period:</u>	September 2018 through May 2019

<u>University faculty, instructor, or staff member:</u>	[REDACTED]
<u>School, department, or unit:</u>	Anthropology; Astronomy; Classics; Computer Science; East Asian Languages and Cultures; French (Barnard); French and Romance Philology; Germanic Languages; German (Barnard); Latin American and Iberian Cultures; Mathematics; Middle Eastern, South Asian, and African Studies; Music; Physics and Astronomy (Barnard); Psychology (Barnard); Slavic Languages; Statistics
<u>CSS-MSE students or staff member:</u>	50 CSS-MSE students; [REDACTED]
<u>Project/purpose:</u>	In the fall 2018 term, 50 CSS-MSE students took courses for college credit at Columbia University, including 20 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 Calculus I, Intermediate French II, Linear Algebra, Data Structures in Java, Theories of the Universe, Science and Scientists, The Origins of Human Society, and Earth Moon and Planets.
<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' 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 2018

<u>University faculty, instructor, or staff member:</u>	SEAS Outreach staff, [REDACTED] (Barnard Education Program), SEAS and Columbia College undergraduates
<u>School, department, or unit:</u>	SEAS and Barnard College
<u>CSS-MSE students or staff member:</u>	[REDACTED]
<u>Project/purpose:</u>	Development of middle school-level engineering curriculum, in consultation with SEAS and Columbia College undergraduate students. Curriculum was piloted for a group of CSS-MSE middle school students in the fall semester. Materials were used in India over winter break in Teach For India afterschool program.
<u>Outreach to students:</u>	Undergraduate students worked directly with CSS-MSE to recruit students in the afterschool program.
<u>Process by which students access benefit:</u>	Students at CSS-MSE were able to take part in an after school Engineering elective course run by CU undergraduate students.
<u>Time period:</u>	Fall 2018

<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>	Fall 2018



<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>	██████████, 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>	Fall 2018

<u>University faculty, instructor, or staff member:</u>	██████████
<u>School, department, or unit:</u>	Lamont-Doherty Earth Observatory
<u>CSS-MSE students or staff member:</u>	██████████, CSS-MSE 9th grade students
<u>Project/purpose:</u>	CSS-MSE students participated in Day on the Hudson. As part of this event, students collected scientific information to create snapshots of the river at dozens of locations, then share their data via the web in order to better understand how their piece of the river fits into the larger Hudson estuary ecosystem. The project is sponsored by DEC's Hudson River Estuary Program and produced with assistance from the Lamont-Doherty Earth Observatory of Columbia University.
<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>	October 2018

<u>University faculty, instructor, or staff member:</u>	██████████
<u>School, department, or unit:</u>	University Events Management
<u>CSS-MSE students or staff member:</u>	██████████, approximately 600 5th grade applicants to CSS-MSE
<u>Project/purpose:</u>	Provides space for testing incoming students as part of the screening and admissions process
<u>Outreach to students:</u>	Applicants to CSS-MSE are participating in the NYC Department of Education's middle school admissions process.
<u>Process by which students access benefit:</u>	Applicants to CSS-MSE are participating in the NYC Department of Education's middle school admissions process.
<u>Time period:</u>	January 2019

<u>University faculty, instructor, or staff member:</u>	Columbia Society of Women Engineers (SWE)
<u>School, department, or unit:</u>	SEAS
<u>CSS-MSE students or staff member:</u>	12 CSS-MSE students
<u>Project/purpose:</u>	SWE hosted the annual Engineering Exploration Experience, an all-day program for high school girls interested in learning more about engineering. Students from CSS-MSE were invited to attend programming, which included seminars from Columbia SEAS faculty and postdocs and hands-on engineering activities hosted by other SEAS student groups.
<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>	March 2019

<u>University faculty, instructor, or staff member:</u>	██████████
<u>School, department, or unit:</u>	Columbia Scholastic Press Association
<u>CSS-MSE students or staff member:</u>	10 students and ██████████ CSS-MSEMSE faculty advisor to The Columbia Pride
<u>Project/purpose:</u>	As part of the Columbia Scholastic Press Association's spring convention, student journalists from around the country attend three days of workshops and panels led by professional journalists and other industry experts on subjects that include law and ethics, writing ledes, photojournalism, starting a news podcast, and investigative reporting. As part of participation in the convention, students also receive oral critiques from professionals on their home publications.
<u>Outreach to students:</u>	Student participants were chosen by the CSS-MSE Newspaper advisor based on their role within The Columbia Pride newspaper team
<u>Process by which students access benefit:</u>	CSS-MSE high school editors of The Columbia Pride are selected to attend the conference by the newspaper faculty advisor
<u>Time period:</u>	March 2019

<u>University faculty, instructor, or staff member:</u>	[REDACTED]
<u>School, department, or unit:</u>	American Studies; Anthropology; Astronomy; Chemistry; Classics; Computer Science; East Asian Languages and Cultures; Economics (Barnard); Economics; French and Romance Philology; History; Mathematics; Music; Physics; Statistics
<u>CSS-MSE students or staff member:</u>	48 CSS-MSE students
<u>Project/purpose:</u>	In the spring and summer 2019 terms, 48 CSS-MSE students took courses for college credit at Columbia university, including 5 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 Calculus I, and II; Advanced Programming; Daily Life in Medieval Europe; Ear Training I; General Physics II; Calc-based Introduction to Statistics; Introductory Korean A; and Preparation for College Chemistry.
<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' 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 2019 terms

<u>University faculty, instructor, or staff member:</u>	[REDACTED]
<u>School, department, or unit:</u>	University Libraries
<u>CSS-MSE students or staff member:</u>	[REDACTED], all CSS-MSE 7th grade students
<u>Project/purpose:</u>	Library and CSS-MSE staff worked together to host a day at Butler Library in order to familiarize CSS-MSE 7th and 10th grade students with library layout, holdings, and research methods. Library staff arranged and conducted workshops and activities for students.
<u>Outreach to students:</u>	The project was a mandatory component of 7th 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.
<u>Time period:</u>	Spring 2019

<u>University faculty, instructor, or staff member:</u>	SEAS outreach staff
<u>School, department, or unit:</u>	SEAS
<u>CSS-MSE students or staff member:</u>	[REDACTED]
<u>Project/purpose:</u>	Columbia Engineering Outreach Programs invited CSS-MSE to visit campus and attend the Senior Design Expo highlighting SEAS graduating seniors' student design projects.
<u>Outreach to students:</u>	SEAS outreach distributes flyers and email invites to partner schools.
<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>	May 2019

<u>University faculty, instructor, or staff member:</u>	GSAPP faculty
<u>School, department, or unit:</u>	Graduate School of Architecture, Planning, and Preservation (GSAPP)
<u>CSS-MSE students or staff member:</u>	[REDACTED], all CSS-MSE 7th grade students
<u>Project/purpose:</u>	As part of a unit on sustainable housing, GSAPP faculty created a presentation for CSS-MSE 7th graders to assist with their identification of elements of sustainable housing and different types of housing in the Morningside area and conducted a tour of the new Lenfest Center for the Arts on the Manhattanville Campus. Students concluded the unit by creating models of sustainable housing.
<u>Outreach to students:</u>	The project was a mandatory component of 7th 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. This unit was incorporated into the CSS-MSE 7th grade curriculum, affecting all 7th grade students.
<u>Time period:</u>	June 2019

<u>University faculty, instructor, or staff member:</u>	[REDACTED], SEAS faculty member [REDACTED]
<u>School, department, or unit:</u>	University Events Management, SEAS
<u>CSS-MSE students or staff member:</u>	[REDACTED]
<u>Project/purpose:</u>	Secured an appropriate venue, arranged logistical details, and assisted with the production of CSS-MSE's June 2018 graduation at Lerner Hall. Keynote speaker was Professor [REDACTED]
<u>Outreach to students:</u>	High school graduation
<u>Process by which students access benefit:</u>	High school graduation
<u>Time period:</u>	June 2019