MIT Instructional Space Planning Guide

during pandemic response (AY20-21)

Objective

Assist each DLC to design and plan for Fall Year 2020 use on-campus locations for in-person instruction.

Contents

- Four Questions Each DLC Should Ask Themselves
- Worked Example: Responses to those questions from one degree program
- Status of Rooms and Capacity by Teaching Sector & Room Type (also in .XLS)
- Teaching Sector Maps
- Recalibration of Classroom COVID Capacity (FYI)

Four Questions Each DLC Should Ask Themselves to prep for space planning

1. **How many students and instructors/TAs do you expect back on campus in Fall 2020?**
   This will not be known with precision, but can be estimated and refined based on an assumed reduction compared to prior Fall semesters. Importantly, sometimes, the critical resource is not the physical space needed to teach, but the number of instructors.

2. **How many and which subjects are you planning on teaching in Fall 2020? Which ones, if any, are going to have some in-person on-campus portion?**
   The general guidance has been that if you can teach a subject remotely, do so in the Fall. On-campus teaching will be possible but will confer some challenges that will not all help improve the educational experience. Some subject listings in degree programs may seek to include aspects of in-person instruction, such as studios, labs, and workshops. This need could be due to access to specialized equipment or materials, or the educational value of group discussion or interaction. Consider that some subject listings could have a portion that is taught remotely (e.g., lecture) and a portion of the same subject listing that includes an on-campus element.

3. **What will the subjects (or portions of subjects) delivered in-person on-campus look like?**
   What is the approximate number of people gathering (students + instructors)? How many concurrent sessions will be needed? Are there any pairs of classes that can be schedulked sequentially (e.g., students remain in the room and instructors swap out)? Do you feel the need for more space than you typically require? Less?

   For initial planning, we considered dividing the week into morning and afternoon blocks of time (9am-12pm and 2 to 5pm), with each block having time for two 85-minute sessions. This creates 20 sessions available for in-person classes per week. Do your planned in-person classes fit within this schedule? Do you see a need to add a third 'evening' block or Saturday classes, depending on whether such scheduling windows are aligned with current MIT policy?

4. **Which campus teaching sectors are appealing for the on-campus instruction by your DLC, at least in Fall 2020?**
   Note that the goal is to minimize flow of people during instructional sessions (and we will have more students than instructors on campus) during instructional sessions. What buildings (see Figure 3 in Appendix) and classrooms would you like to use? Any spaces beyond your normal usage? Your preferred sector(s) may not be available in just the way you were thinking, but it's a reasonable place to start so please consult the sector map ahead of meeting with us.

Worked Example: Supply Chain Management (SCM) Program

SCM is a one-year professional graduate program hosted in the Center for Transportation & Logistics under the School of Engineering. The program has a fall cohort of ~40 students with an additional 40 arriving for the Spring Semester under the blended program in conjunction with the MicroMasters Credential.

1. How many students and instructors/TAs do you expect back on campus in Fall 2020?

There is no lab or studio work within the curriculum, so it could be taught 100% online. However, as with other professional programs, there is a strong desire by the students to have on-campus and in-person components. SCM will be offering the traditional required fall courses along with some electives usually taught in the spring, if needed. Most classes will feature a blend of Zoom streaming, asynchronous video, and select on-campus activities. For those students who prefer to not come to campus, SCM will hold a small session on streaming with identical material.

2. How many and which subjects are you planning on teaching in Fall 2020? Which ones, if any, are going to have some in-person on-campus portion?

The entire cohort of 40 have indicated they will attend the fall. An earlier poll showed that only half were willing to attend if the classes were 100% online. A sufficient number of instructors are willing to come to campus and will not be a bottleneck to instruction.

3. What will the subjects (or portions of subjects) delivered in-person on-campus look like?

SCM will stay within the 10-time block weekly schedule and is looking to keep students on campus for at most one three-hour block per day. The SCM students typically take 1-2 electives in the Sloan school – so the SCM schedule will ultimately need to incorporate their schedule. The typical 9-or-12 unit course will have an all-hands Zoom call one day followed later in the week by several sections of smaller on-campus sessions. SCM courses will still be open for non-SCM students as capacity permits.

4. Which campus teaching sectors are appealing for the on-campus instruction by your DLC, at least in Fall 2020?

The SCM program is located currently in Teaching Sector X and has a dedicated space (E40-356/366) that can be used for teaching. The small sessions can be run there well under the COVID capacity limit. They might need some additional rooms, but can easily stay within Teaching Sector X. The students in our program tend to take additional classes in other units in this region of campus. Sector X would be our preference.

Status of Rooms and Capacity by Teaching Sector & Room Type

These are estimates using the updated engineered conversion factors.

Building Sector	Room Count by Sector By Room Size						Number of Seats by Sector by Room Size					
	XS	S	M	L	XL	Total Rooms	XS	S	M	L	XL	Total Capacity
A	2	19	5			26	4	130	73			207
AA		16	2	3		21		103	28	75		206
AB	2	10	4			16	4	52	53			109
AC		6	1			7		33	15			48
AD		1	1			2		5	18			23
AE					3	3					217	217
AF				1	1	2				38	103	141
AG		2	3			5		18	44			62
AH	1	5	1			7	1	35	20			56
AI	1	7	2	1		11	2	36	24	22		84
B	6	35	13	4		58	10	200	181	98		489
C	5	13	7	1		26	10	81	92	25		208
D	2	13	5			20	4	56	70			130
E	2	13	6	1		22	2	65	69	24		160
F	10	18	3	1	2	34	20	100	42	28	120	310
G	7	10	18			35	9	65	256			330
H		13	2			15		112	32			144
I	4	31	11	5		51	6	170	146	135		457
J		7	10	1	1	19		54	125	42	71	292
K	2	24	5	5		36	4	124	89	160		377
L	1	22	7			30	1	144	110			255
M		4				4		26				26
N		8	2			10		53	25			78
O	4	9	4			17	6	65	54			125
P		2	2	1		5		15	22	42		79
Q					2	2					255	255
R	2	8	5	1		16	4	36	55	25		120
S		10	3	1		14		60	39	24		123
T	8	29	4	2		43	16	171	54	46		287
U	2	7	3	2		14	4	45	40	68		157
V	2	5	3	2	2	14	4	24	40	58	121	247
X	6	26	11	4		47	11	160	163	119		453
Y	4	43	12	13		72	8	237	174	383		802
Z		3	2			5		21	34			55
Grand Total	73	419	157	49	11	709	130	2,496	2,187	1,412	887	7,112

Figure 1. Total COVID Capacity by Teaching Sector by Room Size.

Room Type	Room Count by Sector By Room Size						Number of Seats by Sector by Room Size					
	XS	S	M	L	XL	Total Rooms	XS	S	M	L	XL	Total Capacity
Classroom	1	92	69	7		169	2	677	920	227		1826
Classroom_Fixed		6	27	20	3	56		58	430	619	229	1336
Conference Room	44	248	47	7		346	88	1348	629	174		2239
Other		2	3	7	8	20		17	41	197	658	913
Seminar_Fixed		9				9		61				61
Special	8	19	3	3		33	14	97	49	77		237
Study Room	3	1				4	2	5				7
Teaching Lab	17	42	8	5		72	24	233	118	118		493
Grand Total	73	419	157	49	11	709	130	2496	2187	1412	887	7112

Figure 2. Total COVID capacity by Room Type and Room Size.

MIT Teaching Sector Maps

Teaching Sectors - Campus Wide

Sources:
Basemap: Facility Information Systems (2020)

Teaching Sectors – Main and East Campus

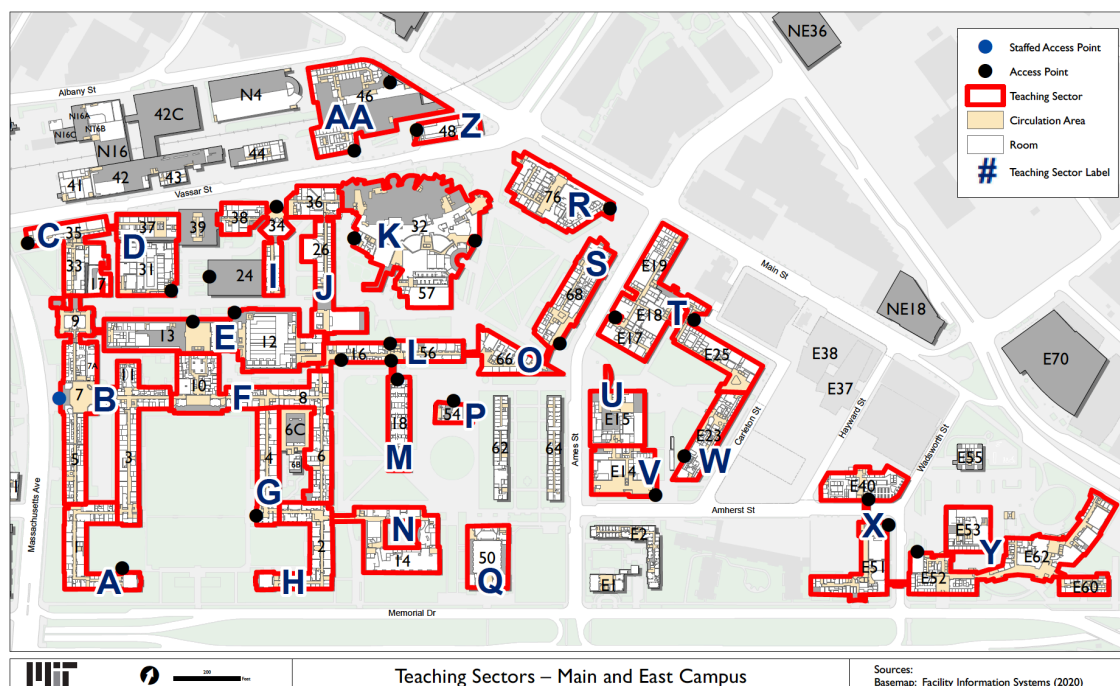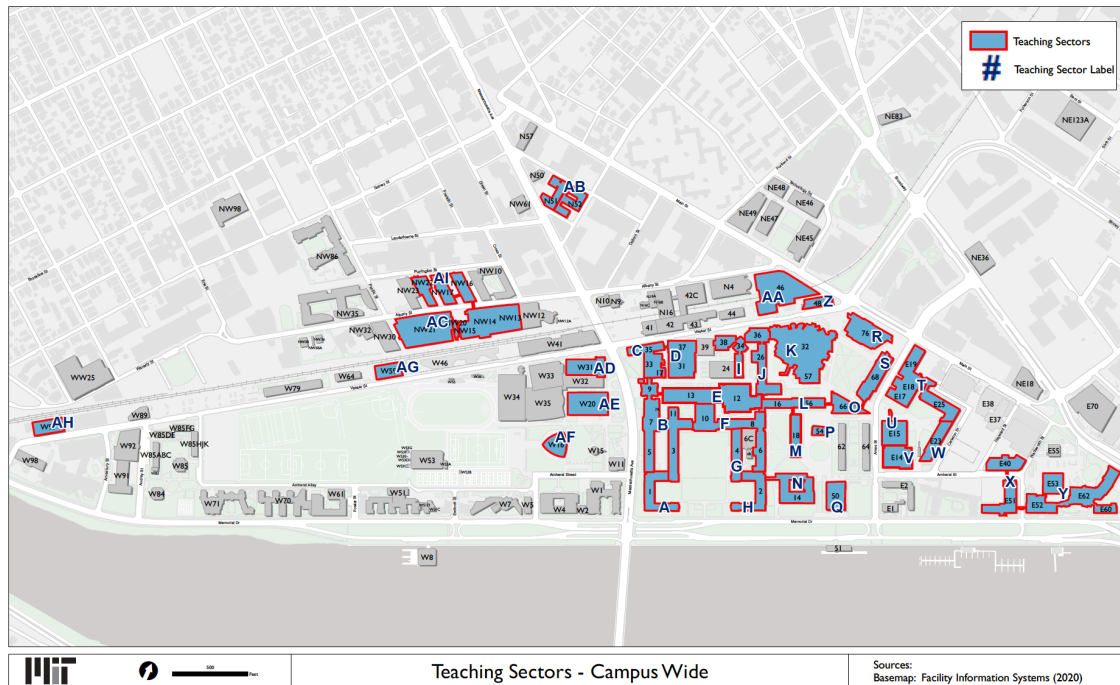Sources:
Basemap: Facility Information Systems (2020)

Figure 3. Current Teaching Sector designations. This should be not be interpreted as assignments of a given sector to a given degree program, but rather a guide to illustrate accessible building access points of entry via Covid Pass and the concept that each sector includes a mix of instructional spaces available.

Recalibration of Classroom COVID Capacity

Our initial estimates of COVID capacity was based on limited information of room size and basic room type. Further investigation indicated that the estimated COVID capacity for many rooms (mainly flat classrooms) was overly conservative. We developed engineered seating assignments adhering to ≥6' separation of students, teaching space for instructors, and walkway aisles for a sampling of rooms. As an example, room E51-361 is shown below.
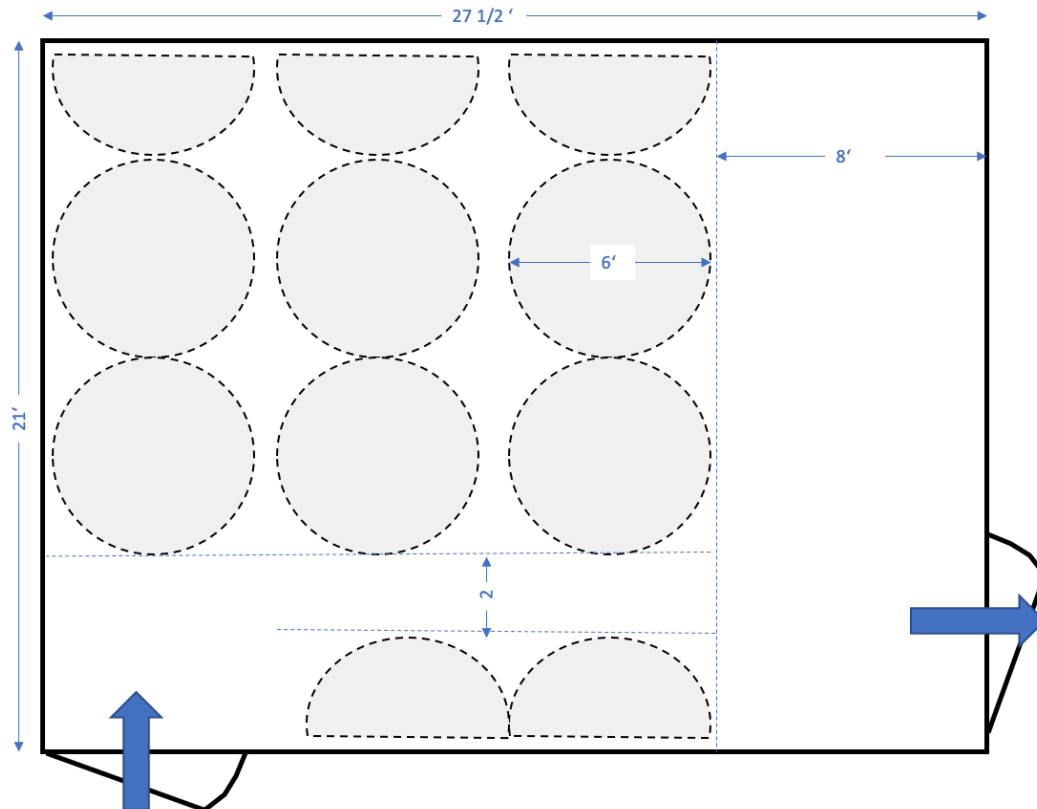

Figure 4. Classroom E51-361 with COVID capacity layout. Each circle represents a student chair/desk. The 8' buffer at front of classroom is for the instructor. The 2' aisle is assumed sufficient. The students are allowed to be closer to the walls than 3'.

This is a flat classroom with Modern Tablet Armchairs (each chair has an attached side desk). The area is 580 sf and the pre-Covid Capacity is 40 students – there are 40 armchairs in the room. The original COVID capacity was estimated using a 120 sf/pp rule of thumb giving a capacity of 4 students. The layout above provides space for 11 students and 1 instructor – 12 total. The new implied COVID conversion would be 45 sf/pp. For the flat rooms surveyed, this conversion factor fanged from 40-60 – we used 60 sf/pp in the final estimator. We used this same conversion factor for Conference Rooms, Seminar_Fixed rooms, and other rooms since they all are essentially flat rooms with moveable furniture. We also engineered some fixed rooms

and found the conversion factor for fixed classrooms to range from 60 to 80 and we kept with 80 sf/pp in the final estimator.

We did not consider duration of class, ventilation systems, or any other factors in developing these estimates. The activity was assumed to be passive listening and talking for all flat classrooms or similarly rated rooms. Rooms which will involve motion (labs, studios, etc.) were classified as Teaching Labs and have a higher required area per person due to the nature of the instruction.